Pottery

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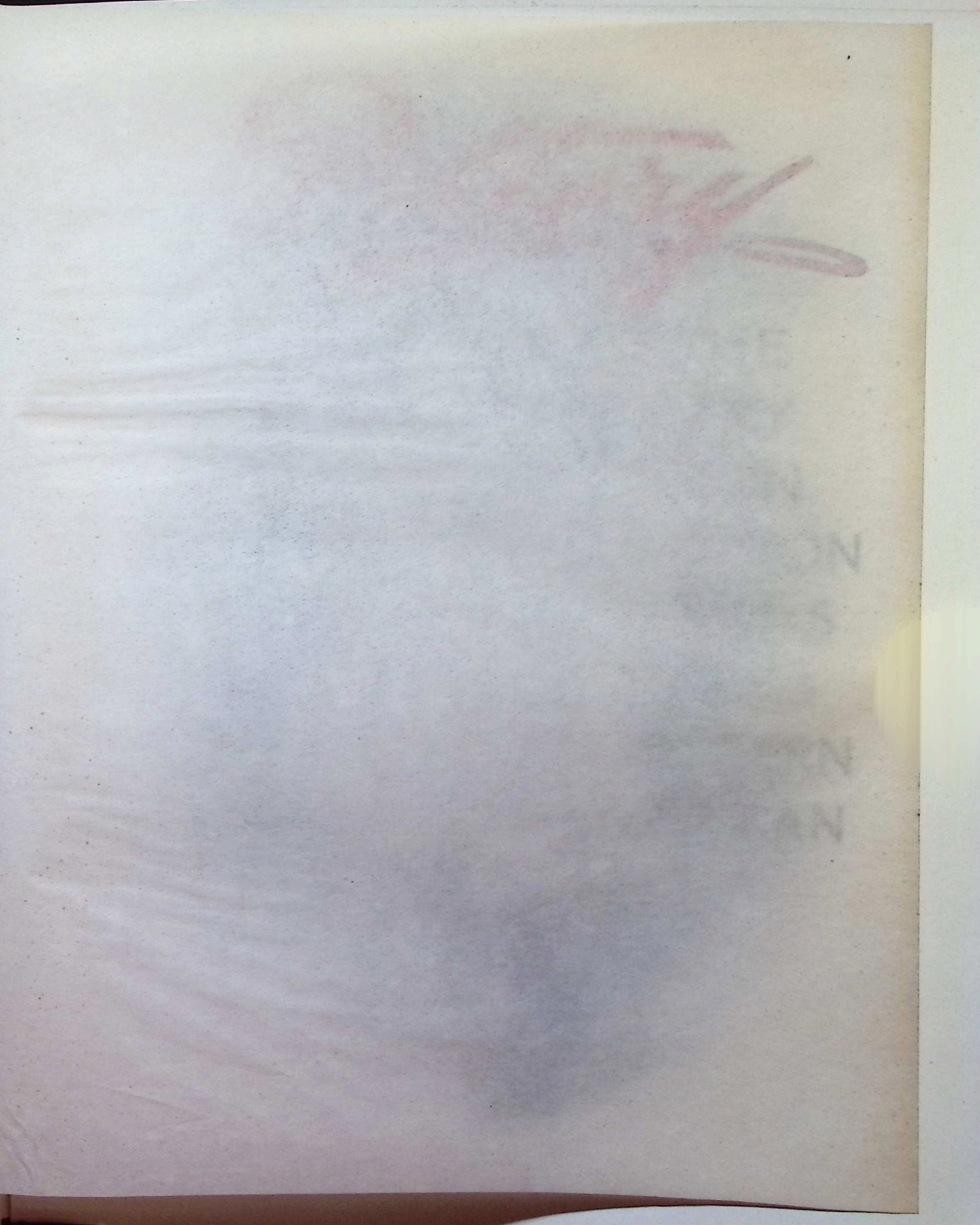


Pottery

A HISTORY OF THE POTTERY INDUSTRY AND ITS EVOLUTION AS APPLIED TO SANITATION WITH UNIQUE SPECIMENS AND FACSIMILE MARKS FROM ANCIENT TO MODERN FOREIGN AND AMERICAN WARES

To

ISABELLA SMITH MADDOCK

LIMITED EDITION

No.

PREFACE

In presenting this book, The Thomas Maddock's Sons Company, with the assistance of such able authorities as Dr. Edwin AtLee Barber, Dr. G. B. Gordon, Hooper & Phillips' "Manual of Marks on Pottery and Porcelain," Barber's "Marks of American Potters," Paliser's "China Collector's Companion," Prime's "Pottery and Porcelain," have undertaken to arrange for its patrons and friends a reliable sketch of the origin and growth of the sanitary potting industry in the United States.

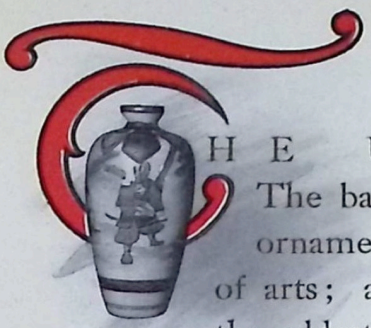
The Company believes that an account of the development of this important branch of the potter's art, so largely instrumental in making modern architecture minister to the comfort and convenience of living, will not be without interest. It is believed, also, that a touch of personal interest pertains to the story of the early endeavors of the first successful manufacturers of sanitary ware in this country. The practical processes of manufacture, fully illustrated in this handbook, are worthy the notice of students of progress in the arts.

The most trustworthy histories of the potter's art have been consulted in the preparation of this sketch. The account of the first American manufacturer is derived from the personal knowledge and reminiscences of the present members of the Company.

Acknowledgment is also made of the assistance given by those employed in pottery manufacture and others in the preparation of the history.

Feeling a natural, and, it is believed, not unworthy pride in perpetuating the name of the first manufacturer of sanitary pottery in the United States, the present Company offers the story of his work to those who now share the benefits which have sprung out of it.

Vase modeled by Broom School of Industrial Arts, Trenton, N. J.



THE UNIVERSAL ART

The baking of clay in various forms for use or ornament is, without doubt, the first and oldest of arts; at least, it is the one of which we have the oldest specimens. The earliest crude shelter for primitive man, the branches of trees, or a flat stone laid over some rude support, may have been the beginning of architecture. But the bits of baked clay found wherever man has at any time had his habitation far antedate the oldest architectural remains. The primitive man who saw the imprint of his foot in the soft mud on which he trod harden in the sunshine until it would hold water would reason that such a vessel, separated and lifted from the earth, would also convey water to his place of shelter and keep it there for his convenience. And so, to shape a hollow cup of clay, and dry it in the sun or bake it in the fire, must surely have been the primary process in human manufacture.

Ancient Egyptian Vase
About 4000 B. C.
University Museum
Philadelphia

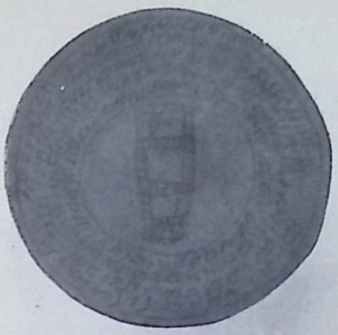
It is quite impossible to say where such manufacture began. But all the lines along which the art of pottery has developed seem to have their origin in Egypt, certainly the home of the most ancient civilization of which records remain. It is possible that the Egyptians received the knowledge of the art with the incoming of wanderers

Ancient Assyrian Slipper Shaped Enameled Coffin
First Babylonian Period
University Museum, Philadelphia

from the Euphrates valley. But if those first immigrants had already been potters in their own land, the work they did perished, for the remains of Egyptian pottery are much older than anything now to be found from Assyria or Babylonia. The art in Egypt came very early to development. Many varieties of pottery, glazed and unglazed, were produced. It cannot now be said which one of them, with or without glaze, was first used. Both come from the time before the building of the Pyramids. But the wonderful enamel, which preserves the brilliant colors of thousands of years ago in undiminished beauty at the present moment, was distinctively an Egyptian art. The Egyptian pottery was used for a great variety of purposes, from the little jar that held perfume or oil, through all manner of household utensils and ornamental objects, to the vases in which portions of a dead body were preserved.

Assyria and Babylonia have preserved few remains from their earliest history, but the earliest record of pottery in literature is that of the manufacture of one form of pottery in "the plain of Shinar," where, it is said in the Scripture history, men built a tower, and for their material

Ancient Jewish Babylonian Sun Baked Brick
About 2500 B. C.
University Museum, Philadelphia



Ancient Jewish Incantation Bowl
About 300 A. D.
University Museum
Philadelphia

said: "Go to, let us make brick and burn them thoroughly." Such bricks, both sun dried and baked, remain in enormous quantities to this day. In later times, the Assyrians and Babylonians learned from Egypt the art of enameling pottery and used a variety of color for decoration. Tablets, inscribed with all sorts of records, of business, social affairs and history, were used for the purposes to which we now apply paper.

Many allusions to pottery in the Scriptures witness that the Hebrews were familiar with it from the earliest time; but, so far as known, no specimens of it of very ancient manufacture are now to be found.

Phœnicia, and particularly Cyprus, furnishes an immense amount of pottery which illustrates the effect of both Egyptian and Greek ideas in manufacture and art.

The Persians seem to have inherited, through the Sasanians, much of the skill in manipulating and firing clay possessed by the people of ancient Assyria. All Persian ware is pottery mostly decorated. Out of early Persian manufacture, after the invasion of the Arabs in the seventh century, developed the highly decorated enameled tiling which makes Saracenic

Cyprus Pottery
800 to 1500 B. C.
Pennsylvania Museum

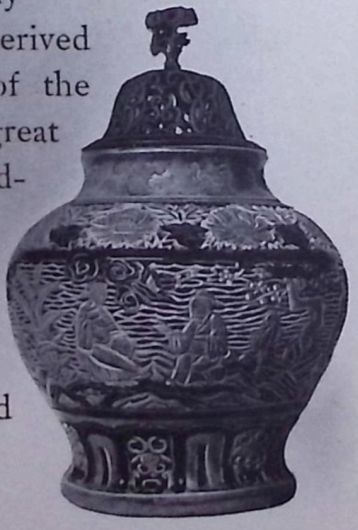
Persian Vase
Seventeenth Century
Pennsylvania Museum

pottery so influential in modern art. The Saracens in Persia made vases, cups, bowls, water bottles, dishes and other objects in soft pottery, sometimes painted and glazed, sometimes covered with tin enamel.

No one can determine the relations between China, India and Japan in the earliest times. Pottery similar in character was made by all three of these nations, while, at the same time, each practiced the art in its own way. But to China belongs the distinction of having developed the manufacture of porcelain to the highest degree. This manufacture is believed to be comparatively modern, and no specimens of very early date remain.

While the simple process of baking clay was doubtless known in Japan from the earliest period of life in that country, pottery as an art is of comparatively recent date, and almost certainly derived from China. The artistic talent of the Japanese has made their work of great and peculiar beauty, and for a considerable period in modern times it has had great influence upon the decoration of pottery by other nations.

Chinese Stoneware Vase
Early Ming Dynasty
Fifteenth Century
Pennsylvania Museum



The origin of the art in India is a matter of mystery. Chinese and

Japanese Pottery Vase Seventeenth Century Pennsylvania Museum

East Indian art have some characteristics in common, but there is nothing to show that the development of the art in each country was not entirely independent. The distinctions are well marked. Specimens of Hindoo pottery not less than two thousand years old are in existence, and the art of decoration has been brought to a high degree of beauty and detail.

Turning westward from Egypt, the history and civilization of Greece come first to notice. Beginning with the influence upon its earliest races of the Asiatic tribes who came from the East, bringing with them the arts of their own lands, Greece became the home of a highly developed civilization and of transcendent art. The first Greek pottery was, doubtless, a product of Phœnician ideas, which influenced the development of the art until there could be said to be a purely Greek type. The Greeks probably first used decoration for the sake of beauty rather than for religious symbolism. For the purpose of making a ground for decoration with the pictured stories of their history, they adopted a red pottery of Phœnicia, adorned with circles in black, which they sometimes modified to buff. Vases of all imaginable forms, adapted to every conceivable use, some of coarse pottery, some of a

Ancient Pottery Bowl India Pennsylvania Museum

Greek Oil Vase
(Lecythus)
400 to 450 B. C.
Pennsylvania Museum

fine, hard, bright red ware, glazed and unglazed, together with tiles and bricks for architectural work, made up the Greek manufacture.

Magnificent vases, found in enormous quantities in tombs in Italy, testify to the spread of Greek art to that peninsula. The art of pottery in Italy, like others, had a development chiefly toward practical uses. Brick, tile, household utensils, with vases in Greek style, make up the substance of Roman manufacture. Lamps form a particularly noticeable portion of the pottery, in the fine red ware of Arretium or Samos, beautiful in shape and elegant in decoration. Considerable quantities of this Roman ware are found in Great Britain, in witness to the Roman occupation of the British Isles. It was in Italy, at the time of the Renaissance, that the Saracen ideas of art, in form and decoration had most influence; and modern Italian pottery, particularly its great variety of majolica ware, with both lead and tin enamel, is traceable to Saracen models and processes. It is in Italy, also, that we first come upon the use of portraits for the decoration of plaques and vases. Porcelain, also, of great delicacy and beauty, was made in Florence in the times of the Medici.

Rhyton, or Drinking Cup
Apulian (South Italy)
250 or 300 B. C.
Pennsylvania Museum

Hispano Moresque Pottery
Fifteenth Century
Victoria and Albert Museum

Spain and Portugal have little that is original to show in the development and practice of the art. Spanish pottery is, naturally, greatly influenced by Saracenic ideas, and has made no advance upon them, either in manufacture or decoration.

France shared with the other nations of Europe the simple art of baking clay into forms of various use, but had no distinctive style of manufacture until as late as the sixteenth century. At that time seems to have originated the famous faience of Oiron, a beautiful work of amateurs, who used a fine pipe clay as the basis for admirable decoration, and whose unique art greatly influenced the subsequent development of pottery in France. The great French name in the history of decorated pottery is that of Bernard Palissy, who wrought out for himself, with immense toil and pains, the problem of relief and enamel. The more modern porcelains, like those of Sèvres and Limoges, continue to represent the skill and beauty of French pottery.

Biberon, Henri Deux Ware
Sixteenth Century
Victoria and Albert Museum

Unglazed, glazed and enameled pottery was made in Germany certainly as early as the thirteenth century, and probably long before. It is probably through Germany, rather than through the south of Europe, that the art as

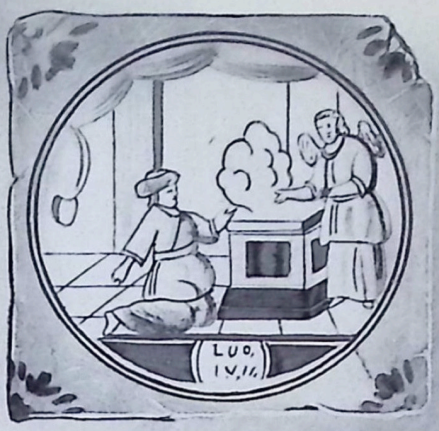
Palissy Dish
Sixteenth Century
Victoria and Albert Museum

practiced in England must trace its origin. Germany abounds in ancient pottery wares, covered with lead glaze, which are of the centuries prior to the thirteenth. Stoves of enameled tile are numerous. Ancient churches were decorated with such tile. Faience and porcelain are traceable all along from the sixteenth century to the present time.

The pottery of Holland may almost be summed up in the one name of the town of its manufacture—Delft. The innumerable forms of domestic pottery have all been put into the famous Delft ware, the name of which is as distinctive for such pottery as is the name china for porcelain. America abounds in specimens of Delft, through the early settlement of Manhattan Island and vicinity by the Dutch.

The pottery of Great Britain may be traced, with some certainty, from prehistoric times. The sepulchral barrows of Britain have supplied vast stores of prehistoric pottery, mostly made of coarse clay, which has been kneaded with some care, and occasionally mixed with gravel, quartz crystals or pounded pottery. This pottery is all hand made, though some of it is so well shaped as to appear at first sight to be wheel made. Urns for the deposit of the ashes of the dead, food vessels and drinking cups make up

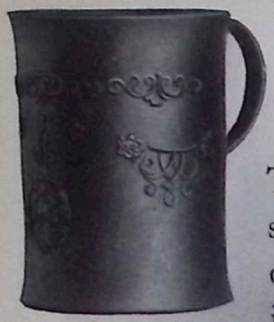
Old German Stove Tile
Seventeenth Century
Pennsylvania Museum



Old Dutch Delft Tile
Leefson Collection

the bulk of this prehistoric ware. Some Celtic remains show no little skill, and it has been thought that much of the Celtic pottery was the work of women. Some Celtic urns found in Staffordshire may be regarded as the beginning of the long series of Staffordshire wares, which have been so famous in modern times. The Roman invasion brought a beginning of ornamental pottery, naturally after Italian styles. The Saxon potteries are not unlike the Celtic, consisting largely of burial urns. With Norman pottery, the use of glaze begins to appear. Tile also was manufactured for the pavement and decoration of churches. Vessels for holding liquids were made of a lead glazed ware in various parts of England, and after German wares had made their way thither, an English stoneware appeared. Imitations of Dutch Delft began in the seventeenth century. The history of the modern English pottery probably begins with the name of John Philip Elers, of Bradwell, who, with his brother David, introduced new processes, developed new shapes and set English pot-

Staffordshire Creamware
Group, 1820
Pennsylvania Museum



Elers Red Mug
Victoria and Albert Museum

tery on the road to its present superiority. The Elers Brothers kept very carefully the secret of their wares. It is said that a potter of Burslem, named Astbury, pretended idiocy in order to obtain employment about their factory, where he learned their processes, which he afterward applied to manufacture for himself. The name of Twyford, associated with the modern history of English pottery, is also connected with the discoveries and processes of the Elers Brothers. It was probably Thomas Astbury who by chance discovered the use of flint for the manufacture of stoneware. The Wedgwoods, who, in the person of Josiah Wedgwood, did so much for English manufacture, late in the eighteenth and early in the nineteenth centuries, had their works at Burslem. Josiah Wedgwood gave to his factory the name of Etruria. There, with his sons and associates, he did the great work for ceramic art which has spread his name so widely abroad. The Wedgwood cream color ware became famous, and a service made of it for Queen Charlotte, in 1762, gave it the name of "queensware." The well known jasper ware, a white stoneware bisque, is perhaps the chief achievement of Wedgwood, though his

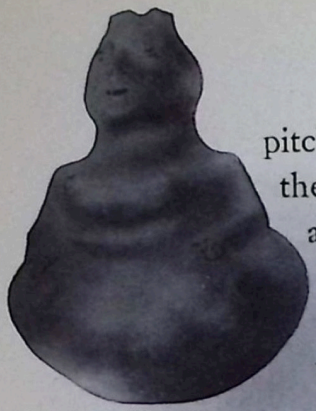
Portland Vase
Reproduced in Stoneware by Josiah Wedgwood
Pennsylvania Museum

Queensware Tea Pot
Made by
Josiah Wedgwood
About 1770
Pennsylvania Museum

reproduction of the Barberini or Portland vase places him among the first art potters of England. The successors, rivals and imitators of Wedgwood have made Staffordshire the great center of modern pottery manufacture.

Remains of ancient pottery in America are found chiefly in the prehistoric mounds of the Mississippi valley, the pueblos of Colorado and New Mexico, and the tombs of the early races of Peru. This native American pottery was not infrequently extremely well made, in a large variety of shapes, with much color decoration and occasionally a thin polish. The pottery of the early tribes along the eastern coast of America was crude and poor. After the settlement of America by Europeans, coarse pottery was made in various parts of the country, but no artistic work was attempted. Pottery was not common in American houses until the middle of the eighteenth century, and few of the people of Revolutionary times had seen porcelain. When Delft pottery began to be used for table and household purposes in England, or to be brought over by Dutch settlers, small quantities found their way to this country, but neither crockery nor porcelain took the place of pewter and wood on American tables, and wooden trenchers, pewter dishes, mugs,

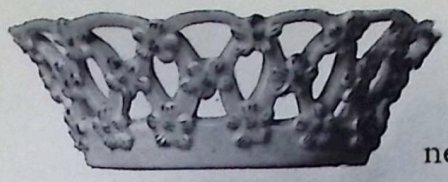
Peruvian Pottery
About Fifteenth Century
Pennsylvania Museum



Mound Builder's Pottery Jar
Prehistoric
Pennsylvania Museum

pitchers, etc., continued in general use until the nineteenth century. In 1784 newspapers are found advertising Wedgwood mortars and pestles for druggists, and also other varieties of English crockery and stoneware. But the first traces of American manufacture of pottery are probably to be found in a letter of Josiah Wedgwood, in 1765, in which he expresses apprehension with regard to the effect of a proposed pottery, to be established in South Carolina, upon the English trade. Before the end of the eighteenth century many potteries were established in various parts of the country, but they manufactured only a coarse stoneware. In 1791 the "American Museum," published in Philadelphia, reported that "coarse tiles and bricks, potter's wares, a few ordinary vessels and utensils of stone mixed with clay, etc., are all that are now made." Various towns in New England had kilns for the making of "queens" and other earthenware in 1810, though the queensware was probably not the English sort, but a heavy, white pottery. Porcelain was made in Jersey City in 1825 and in Philadelphia in 1825. The rapidity with which Trenton became a chief center of the pottery manufacture of the United States is somewhat remarkable. In 1852 the busi-

Ancient Alaska Eskimo Pottery
University of Pennsylvania Museum



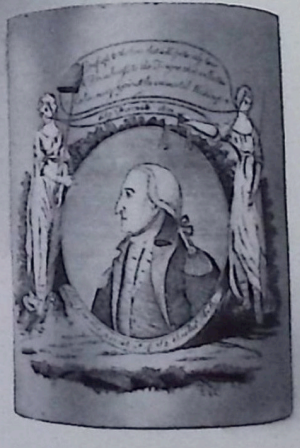
Creamware Fruit Dish
Made in Philadelphia 1769–1773
Pennsylvania Museum

ness was begun at Trenton, by Taylor and Speeler. The Trenton firm made yellow and Rockingham ware, and in 1856 were attempting white granite ware. To Mr. Taylor, it is said, is due the credit of first firing a kiln with anthracite coal. After some changes in management, this first establishment passed into the hands of Isaac Davis.

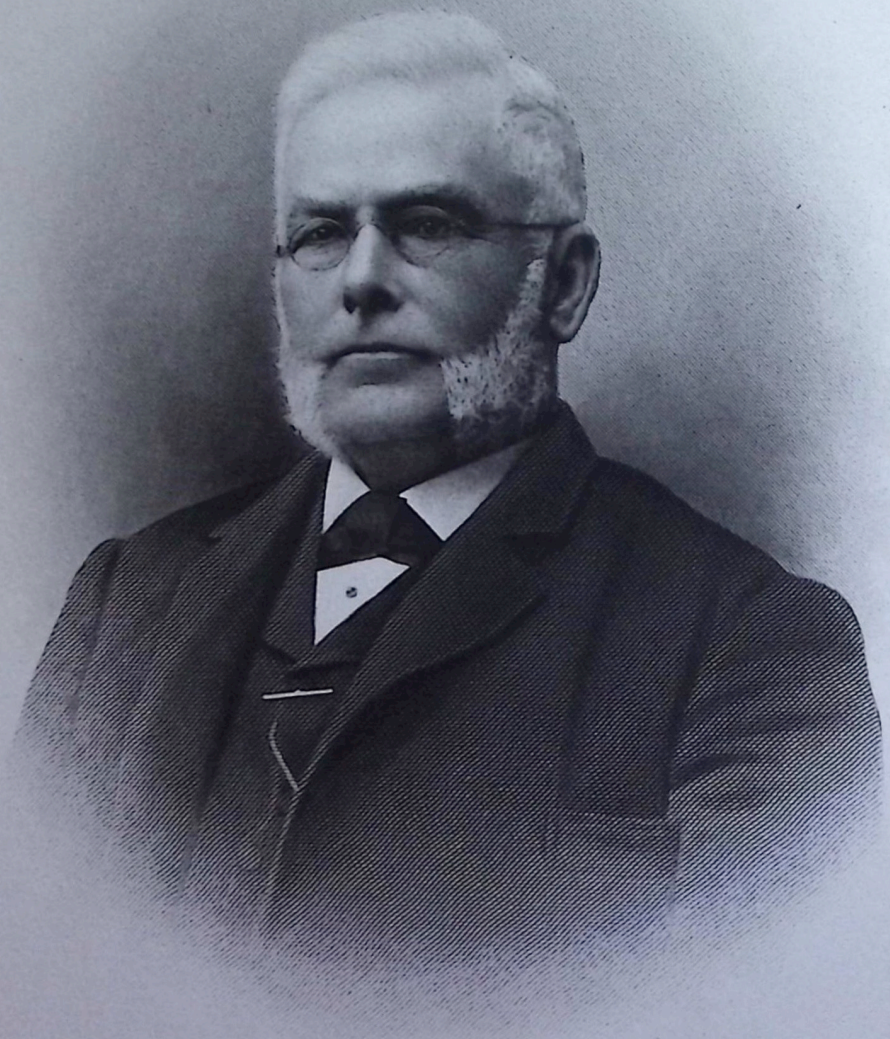
The first to make cream colored ware were William Young and Sons, Millington and Astbury. Of the original partners in this business, John Astbury and Richard Millington formed a partnership with Thomas Maddock in 1873. And with Thomas Maddock began the manufacture of sanitary pottery in this country.

The progress of less than sixty years has made Trenton a chief pottery producing center in the United States, and its wares, from common white granite to the most delicate porcelain and Belleek, have become familiar to the people of all the world, and today Trenton manufacturers are producing pottery unexcelled by that made in any foreign country. A visit to Trenton would convince every true American that he can feel proud of the achievement made in this important industry, the oldest of arts.

Creamware Mug
Liverpool (Eng.), about 1790
Portrait of Washington
Pennsylvania Museum



Vase made in our factory in the presence of the Governors, whose names were inscribed by themselves in the clay during process of manufacture
Pennsylvania Museum, Philadelphia



Thomas Haddock

Thomas Hancock

SANITARY POTTERY IN THE UNITED STATES

Thomas Maddock, the first successful manufacturer of sanitary ware in this country, was born in England, in April, 1818, of a family who had been potters for generations. He served his apprenticeship as a decorator, in the Davenport potteries at Longport. In 1847, with William Leigh, he left England and came to this country, bringing with him, in a trunk, the tiles for the construction of a kiln for firing decorated ware. Nothing of the kind was known in this country, and the decorator would have to build his own kiln. Shortly after their arrival, the two, Leigh and Maddock, established themselves in the business of decorating china, in Spruce Street, New York City, being the first to undertake the practice of that art in the United States. In 1853 they decorated a dinner service for use in the White House, during the administration of President Pierce. They also decorated table services for the famous St. Nicholas Hotel, of New York, which was opened in 1853. Mr. Maddock also afterward engaged in the retail crockery business in Jersey City, N. J., acting as sales agent for Millington and Astbury, manufacturers of pottery in Trenton.

On April 4, 1873, Mr. Maddock formed a partnership with those gentlemen, under the name of Milling-

ton, Astbury and Maddock, in Trenton, for the manufacture of earthenware, in which the firm was very successful and built up a profitable business. But Mr. Maddock had become impressed with the idea that sanitary ware, then imported from England in small quantities, might be made in this country to advantage, and he devoted himself to patient and long continued experiments in that direction.

One or two attempts at the manufacture of this class of goods had been made previous to this time. Isaac Davis and American Crockery Company, of Trenton, N. J., and James Carr, of New York, had tried it, but found the difficulties too great to be overcome by their ingenuity or resource, and all had abandoned the attempt in 1873. But Mr. Maddock believed that there was a great future for the industry. He saw no reason why, if sanitary earthenware was successfully made in England, it should not be equally well done in this country. He had not himself learned the method of manufacture in England. But he set out to find out for himself the best method, not perhaps, appreciating the long and laborious road that lay before him. The story of his experiments and his failures, before success rewarded him, is an interesting chapter in the history of Anglo-American industry.

The difficulties with which Thomas Maddock had to deal were inherent in all the material with

which his work must be done, whether minerals or men.

It was no easy matter to work out the proper formula for the "body" for heavy sanitary earthenware. Table and toilet ware had hitherto been the principal product of the Trenton potteries, and the body most appropriate for such ware would not serve at all in the sanitary ware. Each constituent material had its own value, and carried also its own possibility of damage. Too much flint tends to produce "dunting" or cracking. Too much spar gives the body an unduly glassy character, and makes it apt to bend and craze. In the kiln, fire prevents crazing, but, if not skilfully regulated, warps the ware out of shape. All these things must be looked out for in advance. But with the lack of knowledge and experience concerning these important details, many lots of what looked like excellent ware would be ruined in the firing.

The losses occasioned by failures in the proper preparation of the body were very heavy. In some cases when fifty pieces were placed in the kiln forty-five would come out defective. A loss of ninety per. cent. was far from being profitable manufacture. So much was suffered that Mr. Maddock's partner, Mr. Astbury, who was quite content with the prosperous manufacture of general ware, became entirely discouraged and could not see why Mr. Maddock wanted

to continue experimenting with a line so unsatisfactory when their other business was so profitable.

Beside the difficulty with the material was that with the operators. There were, of course, no skilled mechanics in that line, and operators did not care to learn how to deal with the new and difficult work. They could make more money on the general ware, to which they were accustomed. When they did undertake the handling of the new pieces, there was great probability of loss in the ware coming imperfect from the biscuit kilns. So great was this probability that the men were paid day wages, since, if they were paid upon the basis of ware good from the kiln, as is the usual custom, there would often have been very little coming to them upon pay day. Kilnmen, also, had no knowledge of the method of placing large pieces in the kiln. When the piece came from the kiln to the dipper, for receiving the glaze, he did not know how to handle it. Moreover, besides the lack of expert knowledge, the operatives usually had their own notions of how the work ought to be done; and when once they had determined how they would do it, the manufacturer's wish was of little weight with them.

Time, toil, patience and indomitable perseverance finally brought Mr. Maddock to the point where he could say that he could make sanitary ware in his

factory in the United States. He was able to produce such articles as round basins, French closets and Philadelphia hoppers. The ware was not of a high class. Dunting and crazing were common. The Henry C. Meyer Company kept in their basement a vat, or tank, of water which they used for testing closets. When they unpacked a crate, they would put the pieces in the water in the tank and let them remain for some hours. After a test of this kind, it was not unusual that twenty-five per cent. of the ware would be dunted through the seams, where the parts were stuck together. But poor as it was, it was practical, usable ware.

The next difficulty before Mr. Maddock, therefore, was that of marketing the product. The first step was to convince the jobbers that this American ware could be used in place of the imported, and this was a more difficult undertaking than producing the goods. At that time there were only a few jobbers in the United States, and they were dealing only in imported goods. Only four English potters were exporting sanitary ware to the United States, namely, Brown, Westhead and Moore, Twyfords, Brown of Paisley and Dimock. Mr. Maddock was obliged to display his American ware before the eyes of the jobbers before they would give it the slightest consideration, and when it was shown to them they would have none of it. It was only after long and laborious

urging of his wares that the persistent manufacturer was able to persuade one firm to give a small order.

Mr. Maddock's method of presenting his goods was unique and characteristic. As might be supposed from his struggle with the process of manufacture, he was accustomed to depend upon himself. He would not ride in a car if it were possible to walk. He never wore an overcoat, nor carried an umbrella. And he would himself show the goods he had succeeded in making and was determined to sell.

Accordingly, he would get a piece of slate colored muslin, about the size of a table cloth, spread it upon the floor, and place in the center, one above another, a 14 inch P. O. basin, a 14 inch C. O. basin, a 14 inch R. P. basin and a French closet, the whole weighing from forty-five to fifty pounds. Tying the corners of the cloth together, to serve as a handle, Mr. Maddock would swing his burden up in his hands and start off on his wearisome journey to the dealers. He carried these samples around the lower part of New York City, there being no jobbers above Canal Street at that time, and to the dealers in Brooklyn, day after day, with little or no encouragement for the first six months.

After returning to the factory from a hard day's work in soliciting orders without success, Mr. Maddock's partners would urge him to relinquish the

bootless endeavor, pointing out the folly of worrying with this class of goods, with which they had so much trouble and loss, while they could make general ware with no trouble and the trade would readily take all they could make at a good profit. But Mr. Maddock believed in his ware. After many disappointments, he succeeded in interesting Miller and Coates, of New York, who gave a small order for the Maddock goods, and the prosperous development of the American sanitary pottery industry was begun. This was the last part of 1873.

But even then the ware could not be sold as genuinely an American product. The only condition under which the trade could be induced to place orders was that each piece of ware should be branded with a large stamp, with the familiar imprint of the lion and unicorn fighting for the crown, and the words "Best Staffordshire Earthenware made for the American Market."

After Miller and Coates began buying the goods, Waeffelaer and Duysters placed some orders with Mr. Maddock. As soon as it became evident that he could make the ware, and that it could and would be used where the imported goods had hitherto occupied the field, the same Waeffelaer and Duysters offered to make an agreement with him to take the entire output of his factory. This offer he declined, on the ground that a

number of jobbers were already handling the ware, and that if he should give one firm the monopoly of the product he would be required to refuse other customers, and would be at the mercy of Waeffelaer and Duysters. He continued therefore to furnish his goods to all who would buy, so far as the capacity of his factory would permit.

An incidental item of Mr. Maddock's ingenious labors with sanitary pottery was his invention of the method of fastening a brass coupling to earthenware. Prior to his patent of June 29, 1880, all closets were connected with the lead pipe of the plumbing by means of a porcelain horn, extending from the flushing rim of the earthenware. The lead pipe was thrust inside the horn, the crevice filled with putty and the whole held firmly together by binding with strips of muslin. Mr. Maddock's invention made it possible to couple the plumbing directly to the earthenware by means of a brass coupling, and that method is now almost universally followed.

Mr. Maddock lived long enough to see the great and abundant success of his laborious and patient experiment. Not unlike the famous potter, Palissy, he was aided in all his labors by the sympathy and encouragement of his wife, Isabella Smith Maddock. As it became evident that there was practically an illimitable field for American sanitary ware, other

potters entered upon the manufacture, in some instances abandoning the manufacture of general ware and transforming their factories for the making of sanitary ware alone.

Millington, Astbury and Young operated the city pottery 1853-1859, at which time Millington and Astbury established the Carrol Street pottery, now Thomas Maddock's Sons Company.

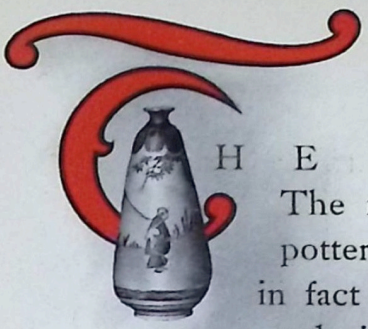
Manufacturers of Sanitary Earthenware	Year established or commenced making Sanitary Pottery	Names of Founders
Thomas Maddock's Sons Co. (Est. 1859),	1873	Millington, Astbury and Maddock
Taylor & Houdayer Isaac Davis Trenton Pottery Works	1883	
Fell & Throp Co.	1889–1892	
Succeeded by Hart Brewer Pottery Co.		
Crescent, Trenton, N. J.	1883	Chas. Howell Cook Wm. S. Hancock
Bought by The Trenton Potteries Co. in 1892.		
Delaware Pottery Co., Trenton, N. J.	1884–1892	Richard C. Oliphant Hughes Oliphant
Bought by The Trenton Potteries Co. in 1892.		
Enterprise Pottery Co., Trenton, N. J.	1879	W. H. Umpleby John Brian Chas. H. Skirm
Bought by The Trenton Potteries Co. in 1892.		
The Willets Mfg. Co., Trenton, N. J.	1909	Joseph Willets Daniel Willets
Equitable Pottery Co., Trenton, N. J.	1888	Andrew Cochran John Leukel Jonathan Coxon
The Great Western Pottery Co., Tiffin, O., Bought by the Conradts & Coxon Co. in 1899.	1889	Albert Brewer
Hammill & Brown, Baltimore, Md.	1890–1900	Matthew Brown Thos. McNulty

Manufacturers of Sanitary Earthenware.	Year established or commenced making Sanitary Pottery	Names of Founders
Trenton Fire Clay and Porcelain Co., Trenton, N. J.	1893	O. O. Bowman R. K. Bowman W. J. J. Bowman
Bellmark Pottery Co., Trenton, N. J. . .	1893	Hughes Oliphant Robt. M. Oliphant Sidney Oliphant
The Great Western Pottery Co, Kokomo, Ind.	1893	G. Conradt W. G. Coxon F. W. Conradt A. V. Conradt
Mercer Pottery Co., Trenton, N. J. . . .	1893–1904	James Moses W. B. Allen
Hart Brewer Pottery Co., Trenton, N. J.,	1895	J. Hart Brewer Henry D. Phillips
Successors to Fell & Throp	1892–1894	Robert Gruesser
John Maddock & Sons, Trenton, N. J. . Incorporated	1895 1905	John Maddock Thos. Maddock A. H. Maddock W. B. Maddock H. E. Maddock
Sanitary Earthenware Specialty Co., Trenton, N. J.	1897	Thos. Swetman Arthur Plantier John T. Moore
Broadway Pottery Co., Broadway, W. Va.	1897–1900	H. F. Weaver James Simpson Matthew Platts
Brian Pottery Co., Trenton, N. J. . . .	1898	Richard Brian James Brian George Brian
Monument Pottery Co., Trenton, N. J. .	1896	L. Wolff John Clifford J. M. Wolff J. M. Hoelscher
Camden Pottery Co., Camden, N. J. . .	1898–1899	Jas. H. Lyons Murrel Dobbins
Egyptian Pottery Co., Trenton, N. J. . .	1891	Chas. H. Baker Cornelius Turford
James H. Baum, Willsville, O.	1891–1897	Jas. H. Baum
Riverside Potteries Co., Wheeling, W. Va.,	1899	Chas. Franzheim

Manufacturers of Sanitary Earthenware	Year established or commenced making Sanitary Pottery	Names of Founders
Ironsides Pottery Co., Bordentown, N. J.,	1892	John Rellstab George Cochran John Cochran David Allen Mahlon R. Margerum
Globe Pottery Co., Bordentown, N. J. .		
Phoenix Pottery Co., Bordentown, N. J.,	1907–1908	John Cochran George Cochran David Allen
The Trenton Potteries Co., Trenton, N. J.,	1892	Daniel K. Bayne Wm. S. Hancock
Composed of: Crescent Pottery. Delaware Pottery. Empire Pottery. Enterprise Pottery. Equitable Pottery. Ideal Pottery.		
Keystone Pottery Co., Trenton, N. J. . .	1892	Jas. H. Lyons J. W. Lyons Jos. Umpleby John Brian
Dale & Davis, Trenton, N. J.	1892–1895	Jas. J. Dale Thomas Davis
Economy Pottery Co., Trenton, N. J. . .	1900	Wm. H. Bradbury
C. B. Walton Co., Trenton, N. J. . . .	1900	C. B. Walton
Interstate Pottery Co., Trenton, N. J. . .	1909	Frank E. Weeden Benj. Walton, Jr. Chas. C. Hill
Acme Sanitary Pottery Co., Trenton, N. J.	1901	Jas. A. Dorety S. P. Deasy John Meagher
Elite Pottery Co., Trenton, N. J.	1901	G. W. Page Samuel Bedson Louis J. Deihl
Standard Sanitary Pottery Co., Elizabeth, N. J.	1901	P. H. Moohan Richard T. Potts Owen Healey John Kelly
Universal Sanitary Pottery Co., New Castle, Pa.	1901	J. W. Knox Chas. J. Kirk Matthew Platts
Fidelity Pottery Co., Trenton, N. J. . .	1902	Chas. H. Baker J. Harris Cogill
Resolute Pottery Co., Trenton, N. J. . .	1903 or 1905	Wm. H. Bradbury
Columbia Pottery and Manufacturing Co., Kokomo, Ind.	1903	I. N. Miller

Manufacturers of Sanitary Earthenware	Year established or commenced making Sanitary Pottery	Names of Founders
Western Sanitary Ware Co., Tiltonville, O.	1904	John Rowe
The Wheeling Potteries Co. See also Riverside Potteries Co.	1904–1909	Chas. W. Franzheim
Keyser Pottery Co., Keyser, W. Va.	1905	M. J. Carroll
The Florentine Pottery Co., Chillicothe, O.	1905	Herbert E. Machin
Reincorporated in	1907	W. E. Eberts Fred. C. Arbenz
Homewood Pottery Co., Mannington, W. Va.	1905	Geo. W. Bowers
Peerless Pottery Co., Philadelphia, Pa.	1905	John Rhead James Lilley John H. Lilley
Excelsior Pottery Co., Trenton, N. J.	1905–1906	G. W. Page Wm. Cook
National Pottery Co., Evansville, Ind.	1906	A. M. Weil H. F. Weaver
Peerless Pottery Co., Trenton Junction, N. J.	1906	Thos. Downs Wm. I. Pullen
Cochran-Drugan Sanitary Manufacturing Co., Trenton, N. J.	1907	E. C. Hutchinson Andrew Cochran Samuel Drugan
Eljer Co., Cameron, W. Va.	1908	R. E. Crane
Lambertville Pottery Co., Lambertville, N. J.	1909	Geo. Pauck Andrew Folv Philip J. Saherty
Abingdon Pottery Co., Abingdon, Ill.	1909	James Simpson
John E. Jeffords & Co., Philadelphia, Pa., James Carr, New York.		John E. Jeffords
Richard Millington, Trenton, N. J.	Made some sanitary ware for a short time.	

Thus the sanitary wares, of which Thomas Maddock could carry his few pieces out of his factory in a sack in his hand, have become a product in which millions of dollars are invested, and which makes habitable and convenient tens of thousands of the people's homes.



THE MATERIALS

The materials used in this universal art of pottery are the most common possible, being in fact the very same as those of which the earth itself is made. The earth is a globe composed of rock of various composition, thinly covered with a coat of the same rock in various degrees of decomposition, and modified by the constituents of the plants that have grown up upon it. In the long course of the shaping of the earth, the rocks have been melted, reformed, split, powdered, compressed into new combinations. Some of these worn and triturated materials are so fine and light as to be blown about by the wind or washed into level stretches by the sea in the form of sand. Others have been compacted together in new strata of rock or in vast beds of clay. At the touch of water and of fire, these elements will still further combine, under the hand of man, for whose use the world was made, into forms of convenience and beauty. And so the very rocks of mother earth become the material for the simple yet marvelous art of the potter.

Of these materials, three are chiefly employed in the specific work of the sanitary potter, namely, clay, feldspar and flint. The various combinations of these three elements, made according to his skill and experience, determine the character of his wares. And

common as they are, the obtaining and preparation of them are not without interest.

Clay, or silicate of aluminum, is produced by the decomposition of granite rock. It exists in all parts of the world, in immense quantities, of a great variety of purity or impurity, according to the amount of admixture of other elements than the aluminum and silica, such as mica, quartz, iron or minerals of various sorts. Its distinguishing characteristic is its plasticity. It can be molded into any imaginable form, and will retain the form when dried. This plasticity is believed to be due to the presence of water within the material itself, rather than in mixture with it, since when the clay is fired it becomes entirely dry and non-plastic. According to the peculiarity of its composition and the degree of its purity, it is suitable or unsuitable for the use of the potter.

Kaolin or China Clay Mine

The foundation of the white and beautiful structure that comes from the pottery for the convenience and adornment of the house and home is "ball" clay, occasionally called "blue" clay, from its dark color.

This color will be worked out in the process of manufacture, so that the biscuit body will be, not pure white, but whitish. With this foundation body must be intermixed a due proportion of kaolin, or china clay, much purer in its original constitution, burning by itself to an opaque texture, and in mixture with the ball clay making the body a more desirable color. Another variety, known as Florida clay, is in composition and character between ball clay and china clay. It burns cream white, and so produces good color, but is not quite so plastic as the common ball clay.

None of these, however, is suitable for the finer working of the potter's hand until it has been put through various processes of manipulation and purification. The clay used in the manufacture of American sanitary ware comes chiefly from England, with an admixture of a certain amount of American clay. Since the method of preparation does not vary very much, except in small details, a brief following of the methods pursued in the pits of Dorsetshire and Cornwall, England, will give a sufficient notion of how the material is prepared for the factory.

When a good and workable clay bed has been located, the earth above it is removed and a considerable portion of the clay exposed. A rough channel for water is then broken in the clay, and a stream of water, from some nearby streamlet, if available, or

otherwise artificially brought to the edge of the pit, is turned down upon the streak of broken lumps. Men pound and pick at the lumps, with wooden "dubbers," to break them up still more and submit them more freely to the dissolving action of the water. A stream of more or less fluid clay, still bearing a burden of sand, mica and small stones, is thus produced, which works its way down to the bottom of the channel. The heavier material is deposited along the course, and the milky stream collects at the bottom of the channel, or mine, whence, in the English clay pits, it is pumped to the surface, ready for the process by which the sand and mica still held in it may be separated.

For this separation, the clay in solution is permitted to run slowly over a series of shallow basins so arranged that the sand and mica, settling to the bottom, may be drawn off in channels underneath the basins, while the purified clay in the water continues to flow slowly toward the outlet.

Interior of Clay Dry

From the mica basins, the fluid clay is drawn in pipes to the settling pits. At this point in the process,

the proportion of clay in the solution is about fifty per cent. In the settling pits, the clay slowly descends, in a thickening cream, toward the floor of the pit, while the clear water at the top is drawn off and, in many cases, pumped again to the washing channels and used over and again. The settling occupies about twenty-four hours, and the deposit in the pit is about five feet deep, the consistency being about two and a half pounds of clay to a gallon of water.

From the settling pit, the purified clay is drawn once more to huge tanks, for the final open air process in its preparation. In the tanks, the clay remains for a period of from three to six weeks, the water continuing to rise slowly to the top and being drawn off as the mass of pure clay slowly sinks, until it is of the consistency of clotted cream or putty lime, the proportion of water and clay being now about half and half.

After thus drying in the tank for the necessary time, the clay is transferred to a roofed-in building, technically known as the "dry." Here it is spread about upon the floor, or "pan," under which flues from a furnace at one end carry heat to the chimney at the other end. Evaporation of the water still remaining in the mass takes place both downward, through the porous fire clay slabs which form the floor of the pan, and upward into the warm air of the dry. After the wet clay has been spread over the pan to its proper

depth, and the drying has commenced, it is run through with a tool called a "cutter," forming the clay into cubical blocks, exposing a larger evaporating surface and dividing the mass into convenient shape for handling. A more recent method of separating the water from the clay is by filter presses.

When the clay is thus finally dried and ready for transportation to the pottery, where it will be worked up into the wares for which it is designed, it still contains about ten per cent. of water in chemical combination, which, as we have before seen, preserves the plasticity of the material. This water is supposed to enter the compound during the decomposition of the feldspar from the original granite.

Feldspar Mine

Thus, through a long process of handling, which, after all, is nothing more than digging, washing and drying, the original earth finds its way into the bins of the factory, and is ready for the further manipulation by which it will be shaped for the use and convenience of the homes of men.

Feldspar, the second of the materials for earthenware, is a rock widely distributed, composed of about seventy-six per cent. silica, eight per cent. potassium and small proportions of other elements. It fuses, under fire, to a glassy consistency, and serves, in combination with the clay, to bind it into a more coherent body. It is a native rock found in greater or less quantity and purity wherever rock appears at the earth's surface. That used in the manufacture of sanitary ware comes largely from Maine, and is quarried in that state as one of its valuable industries. It requires no such preparation as the clay, but being brought from the quarry directly to the mill, is ground into a white powder and dumped in the pottery bin, whence it goes at once into the "blunger" with the clay and flint for the making of the earthenware.

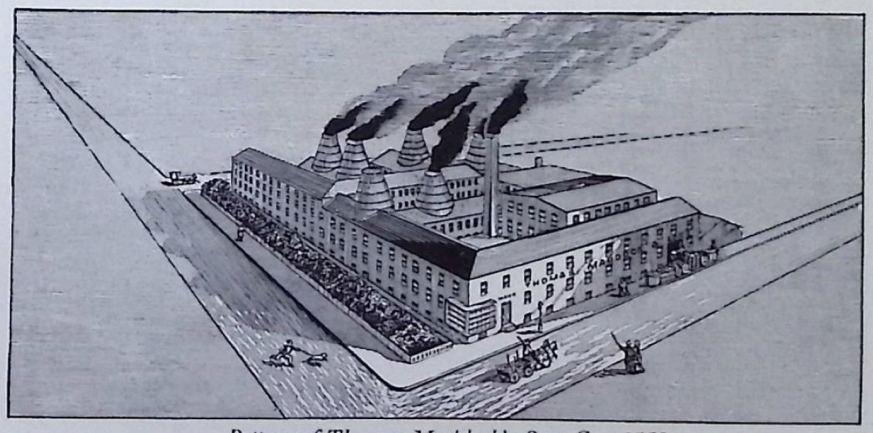
Flint, also, requires but simple preparation. It is another silicious rock, being composed of ninety-eight

Picking Flint Pebbles on the Coast of Dieppe

per cent. silica, with traces of a few other elements. That which is used for sanitary pottery comes chiefly from the coast of France, where it is collected in huge quantities of water worn nodules, about like a cobblestone for street pavement, and imported to this country, sometimes as ballast, or occasionally as freight on its own account. Arriving at the mill, it is first calcined in a kiln and then ground, like the feldspar, to a white powder, suitable for mixing with the other materials for the earthenware body. A curious story of the discovery of the value of flint in pottery is told in England and may be taken for what it is worth. It is said that Thomas Astbury, who got his knowledge of pottery, as we have seen, from his experience in the factory of the Elers Brothers, was traveling to London in 1700 and stopped at Dunstable, where it seemed that his horse was rapidly going blind. A hostler at the tavern undertook to relieve the animal. Taking a bit of flint stone, he burned it until it was at red heat and plunged it into water, then pulverized it very fine, and by blowing a little of the powder into each eye occasioned a discharge of matter that greatly relieved the suffering horse. Mr. Astbury was struck with the whiteness of the calcined flint, the ease with which it was reduced to powder and its clayey nature when discharged from the horse's eyes. It occurred to him that he might use the material to give a different color

to the pottery he was making. He experimented with the material on his return to his factory, found it a valuable addition to the stock of materials for manufacture, and so introduced it into English pottery.

So, then, with clay for working, spar for binding and flint for its refractory quality, the sanitary potter is provided with the materials for his practical and useful art.



Pottery of Thomas Maddock's Sons Co., 1859

Reverse side of vase made in our factory in the presence of the Governors, whose names were inscribed by themselves in clay during process of manufacture
Pennsylvania Museum, Philadelphia

HOW SANITARY EARTHENWARE IS MADE

The sanitary potter has before him a task of some delicacy, as well as one requiring strength and mechanical skill. He wishes to make an earthenware article, of very complicated shape, designed to be both useful and ornamental. Usefulness is the first consideration. But appearance is not to be neglected. The ware must be strong, to endure hard usage. It must be neatly shaped, to fit it to the convenience of the building in which it is to play an important part. It must be of a pleasing color. And particularly, it must be so covered with a smooth, impervious, enamel-like glaze that heat or cold, acids or chemicals, care or carelessness, will have no effect upon the article in use.

The processes by which this end is reached are not without interest in themselves, embracing, as they do, the most simple and ancient method of man's handiwork and the most modern and skilful adaptations of ingenious machinery. It will be worth while to follow the clay and materials which we have now seen prepared through these processes from the shapeless lump to the finished and shining ware.

The laborer in the clay cellar gets an order to prepare the materials for a certain body. That involves the use of certain well defined proportions of English

Clay Bins

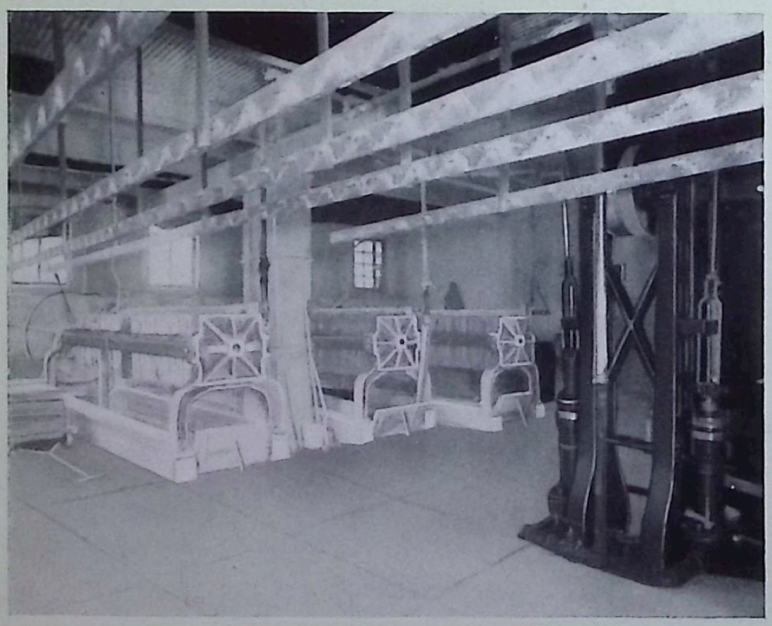
clay, American clay, flint and feldspar. The laborer brings the clay and other materials from the bins, in his wheelbarrow, to the mixing platform, where he combines the prescribed weights of each of the materials in a mixture of perhaps eight thousand pounds. These materials thus mixed would be of a yellowish tint. The eye of some who use the ware might be pleased with this unobjectionable tint, but, inasmuch as the usual taste prefer white, a "stain" is added to all clay mixtures, by the addition of the oxide of cobalt, sufficient to change the yellowish white to bluish white.

Blunger and Lawn

From the mixing platform, the material is shoveled into the "blunger," a tub about ten feet in diameter and six feet deep, one-third full of water. Inside the tub are three cross bars, at different heights. On a revolving shaft in the center are other arms, below those fixed in the tub, so arranged that when the shaft is turned the two sets of arms will not only stir the mixture, but cause it to turn back upon itself, until the whole is thoroughly intermixed. This requires about two hours of continued blunging.

From the blunger, the cream-like mixture is drawn off into a trough in which is placed a large magnet, which will draw out any particles of iron in the fluid clay, for the iron would stain the ware in brown spots.

This trough runs along the head of a frame on which is stretched a silk lawn strainer, of one hundred and forty meshes to the square inch, or of the fineness of the lawn used for bolting flour. The strainer is kept in motion, so that when the clay mixture is run out from the trough upon it it separates any particles



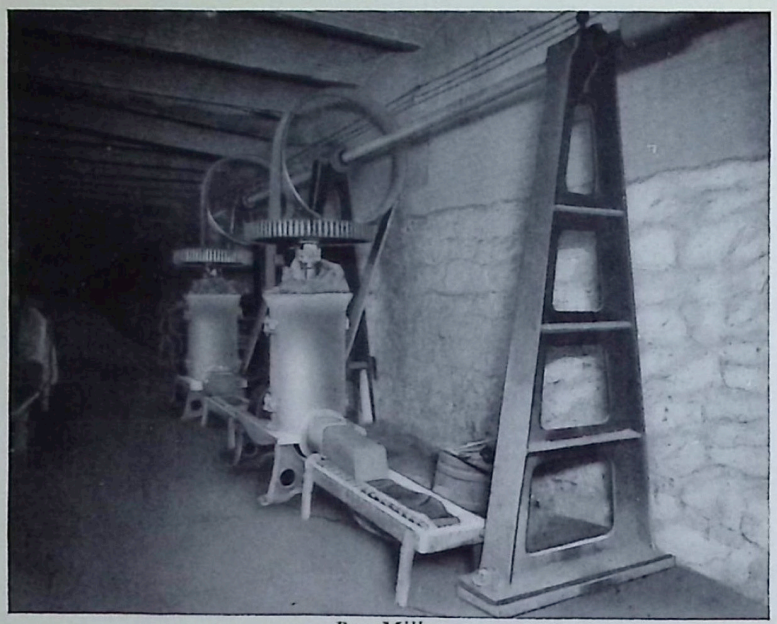
Filter Press

too coarse, while the mixture drips through the lawn into a pit beneath. This process also occupies about two hours. The mixture, after it has passed through the strainer, is called "slip."

From the tank beneath the strainer, the slip is pumped into the "agitators," which are simply receiving tanks, in which the slip is kept in sufficient motion to prevent settling, preparatory to entering the "filter press."

The "filter press" is a series of iron frames, about two feet square, set vertically, and containing each a canvas bag, fine enough to retain the clay and coarse enough to let water drip through it. Through pipes from the agitator, the slip is pumped into these bags in the frames under hydraulic pressure of sixty to eighty pounds. After about two hours more, the water will have dripped out of the bags, and the clay remaining will have been changed from the fluid to the plastic state. The press is then released, the bags opened, and the sheets of smooth, putty-like clay are rolled up for transportation to the aging cellar.

In the storage or aging cellar, the clay is kept in darkness and moisture for a considerable time, seldom less than two weeks. This is called "aging" the clay, and is found to make it more workable. It is a process practiced from very early times in the history of potting. It is said of some of the Chinese potters that

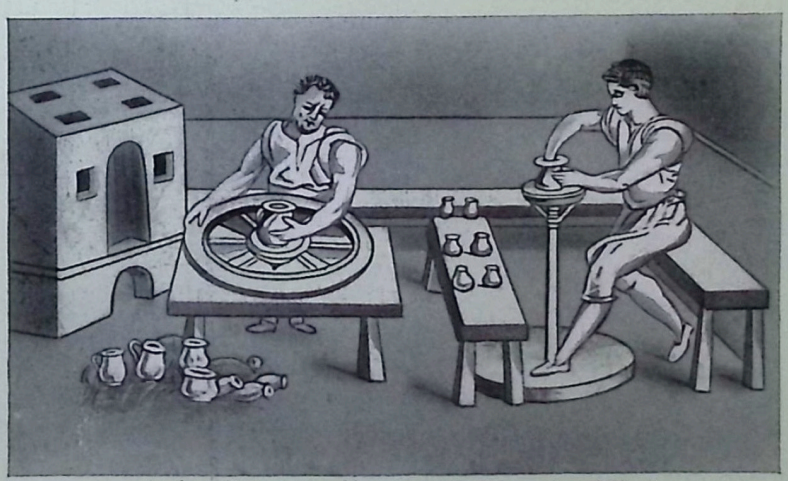


Pug Mill

they use clay which had been prepared by their grandfathers, and that they themselves will prepare material intended to be used by their grandchildren.

After the clay has been in the cellar a sufficient time, it is brought out for further treatment to expel whatever air may still be in it, lest the expansion of some bubble of air within the body may ruin the ware in the kiln, just as it would be ruined by the expansion of water remaining in it into steam. In order to drive out the air, the clay is put through the "pug mill." This is nothing more than a heavy upright cylinder,

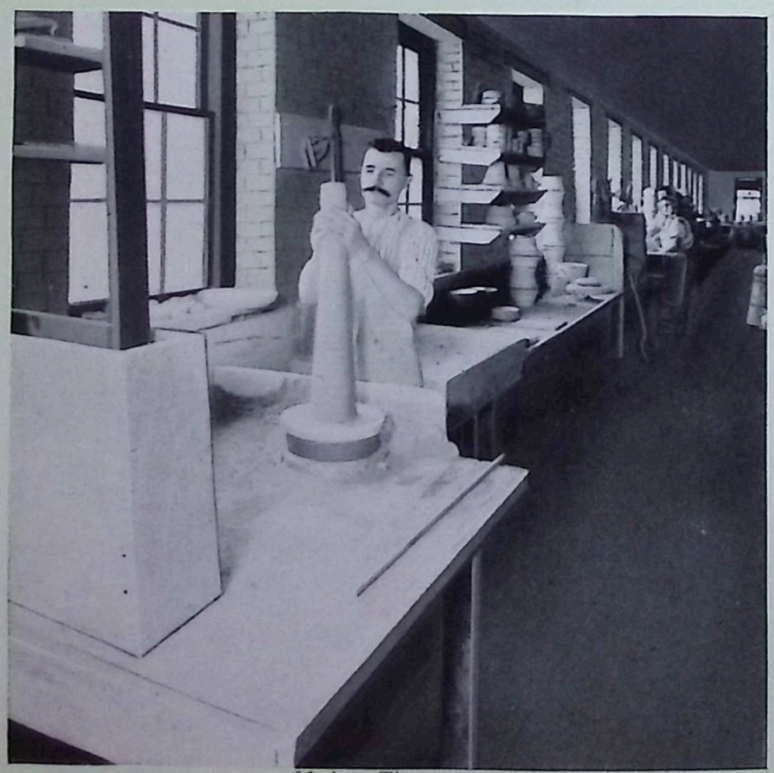
into which the clay is pushed through a hopper at the top, and through which it is pressed downward by revolving knives set at an angle, coming out in a thick square bar at the bottom, thoroughly compressed and smooth. The bar is cut into blocks, and they are taken away to be put at last to the use of the "thrower" or other workman who will shape the clay into the designed form. This pug mill process is comparatively recent. The clay was formerly prepared by "wedging," which was a process of kneading by hand, the blocks of clay being cut with a wire, then lifted and thrown violently upon each other, and so worked over until all the air was presumed to be expelled. It was doubtless the process alluded to by the prophet Isaiah, who



Ancient Potters working on their Throwing Wheel

prophesies the coming of an avenger "as the potter treadeth clay." But the mill has been found to do the work more evenly and thoroughly than hand or foot, and it is therefore now the usual method employed.

Everything thus far has been merely preparatory. But the body is now ready to be worked. The prepared clay is taken to the "thrower" or the

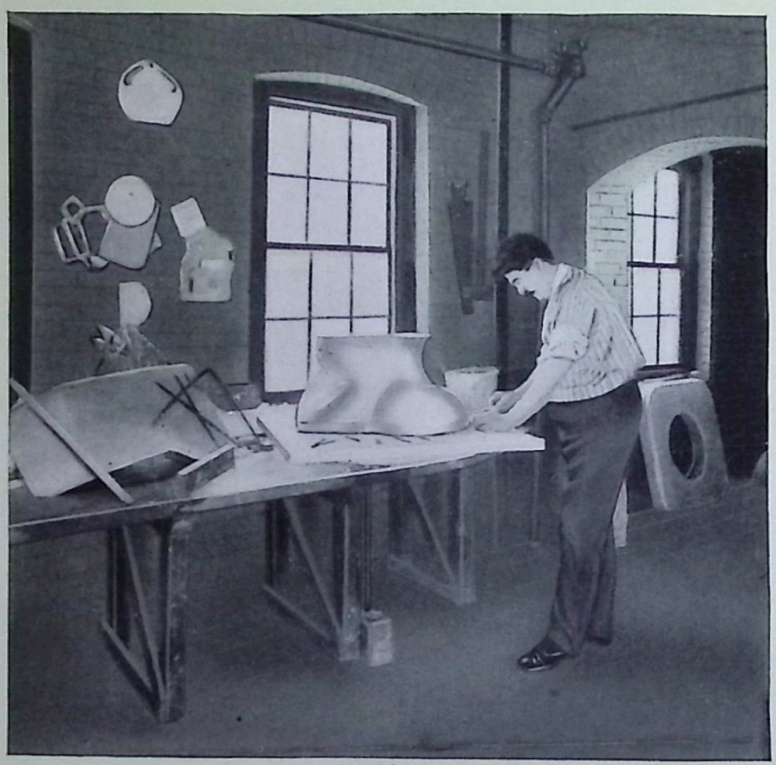


Modern Thrower

"presser," who will shape it into the particular article required.

Throwing is doubtless the oldest process by which clay was shaped into forms for use. It involves the use of the ancient "potter's wheel," which is a round block or slab, upon which the potter throws a lump of clay, and then, whirling the slab with his hand, or, if it be a "kick wheel," with his foot on a lever under his bench, shapes and smooths the revolving lump into such form as he desires. Throwing is applied to comparatively few pieces in sanitary

Turning Lathe



Modeler

manufacture, as the shapes are not adapted to working on the wheel. The progress in this particular process has been from the wheel turned by hand to the kick wheel, from that to another wheel at the end of the bench, belted to the working wheel and turned by a boy for assistant, and from that to the ordinary transmitted power of the factory. But while there is advance in the method

of turning the wheel, the workman can make but little more ware than in the older time and by the older process.

After a piece, such, for example, as the leg of a lavatory, has been "thrown" or built up on the wheel by the workman's hand, it is put on the turning lathe and smoothed into better lines and to a finer surface.

Another more common method of shaping the clay into the desired form is that of the "presser." Pressing is, as suggested by the word, the process of pressing the soft clay by hand into a mould, and so getting the shape that could not be given on the wheel. But as the mention of the mould introduces us to a new factor in the process, we must observe how the moulds are made.

The modeler first models in clay an exact sample of the piece to be made. From this clay model, a plaster cast is taken. Then in the plaster cast a reproduction of the clay model is made, a solid block of plaster of paris, of the exact shape of the original model. This is done in order to preserve the form of the original model. Clay would lose its form by drying and shrinkage. There is no shrinkage in the plaster cast, and from it any number of "working moulds" can be taken. Of course, an article of complicated shape will require a number of different

Mould Making

moulds, for the different parts, which, being pressed singly, are afterward stuck together in the complete shape.

When the mould is delivered to the presser, he presses and smooths a sheet of clay on the inside of it, thus getting the exact shape of the portion desired. One particular article made by the presser at this time is a water closet tank, this being a sanitary appliance which the potter has recently undertaken to make. Another is the vitreous lavatory, which is perhaps the most modern improvement in sanitary

manufacture. Heretofore, the lavatory has been of enameled iron ware, or the old fashioned marble slab, with a crockery bowl beneath. Bowl and slab are now made by the presser in one piece.

For such a lavatory the potter first "bats" out a slab of clay, smooth and even in thickness, on his bench. The slab is worked over with sponge, hard rubber and a thin steel knife, until it is perfectly smooth. It is then placed on the mould and shaped into the proper form for the lavatory slab. The other parts, bowl, back, etc., are also pressed into the moulds and finished and smoothed by hand on the inside. If the moulds are filled on one day, the clay forms will be ready on the next day to be handled and stuck together. The plaster of paris is absorbent, and draws the water from the clay, so that it delivers easily from the moulds.

When all the parts of some one article have been pressed, they are stuck together in the form of the original model, only a little slip and a soft wad of clay being used for that purpose. In a syphon jet water closet, there will be as many as sixteen pieces. These being accurately stuck together, and the seams sponged and smoothed to as perfect a joint as possible, the whole piece is ready for the "green room," where it will remain until it is put into the sagger for the kiln.

Syphon Jet partly stuck together

A third method of shaping ware is that of casting, one of the oldest and simplest processes known. It is used largely in Germany, in the manufacture of small wares. Of late years it has been applied, in some measure, to the manufacture of sanitary earthenware; but while it cannot be said that it has been entirely a failure, it has not proved greatly successful. The process has merits and advantages, and has been thoroughly studied and tested in this country. It can be profitably employed for certain pieces, but has not as yet been generally applied to sanitary ware by

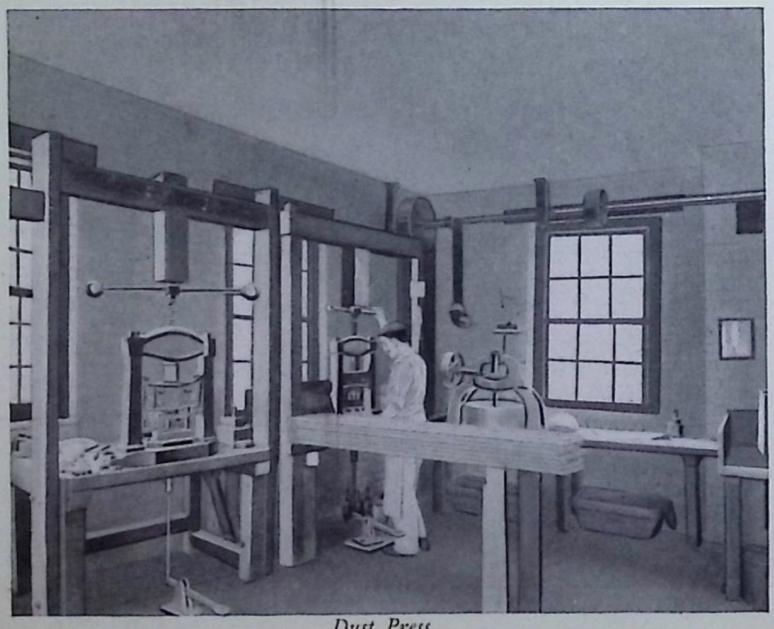
Casting

leading manufacturers. In this process, the clay, in a thin, fluid slip, is simply poured into the plaster mould. The plaster rapidly absorbs the water, and a deposit of clay, of any desired thickness, is left upon the inside of the mould. When the shell of clay has become sufficiently hard, the fluid remaining is poured out, the mould separated, and the piece is ready for the smoothing and finishing before firing.

One more process, in which there has been greater advance than in any other, is the method of

making different small wares by the "dust process." This employs clay dried and ground to a fine dust, which, with only enough moisture to make it hold together, is pressed into shape in steel dies. The particular article being made, as shown in the illustration, is the button used as an index plate for faucets, the words "hot" and "cold" being stamped upon the button after the first firing.

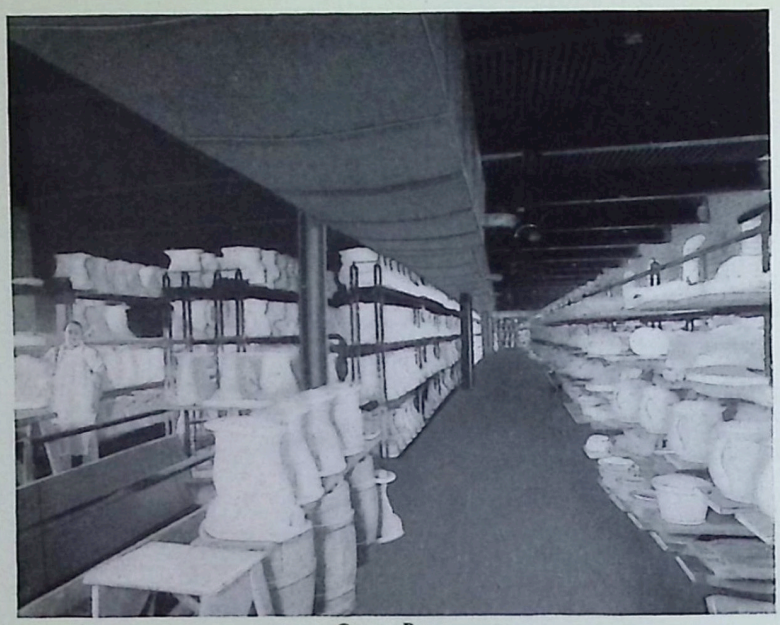
The wares made by the various methods must still be kept under the care of the maker until the moisture has dried out of it sufficiently to make sure



Dust Press

Finishing

that it will not crack, and so be imperfect on being drawn from the kiln. The maker is, therefore, not permitted to carry his piece to the green room at once, but must care for it, if it be a large piece like a lavatory or a water closet, for a period of from four to six weeks, until it is a chalk white, indicating that the moisture is dried out. When that color and dryness are attained, the piece is taken to the green room, a large room fitted with racks for holding the ware, where the maker is finally credited with it as good, the date is put on the piece and it remains for three days



Green Room

or more, preparatory to going into the kiln for the first firing.

The ware, so carefully made, and so true to model in all its lines, must not be exposed directly to the fire and smoke of the kiln, lest it be stained and discolored, or warped and cracked. It is necessary, therefore, to protect it with a cover called a "sagger." The sagger is a rough, heavy receptacle of coarse body, made of a coarser clay from the northern part of New Jersey, mixed with "grog," or bits of old saggers and earthenware ground to the size of about a quarter of

Making Saggers

an inch. The piece of ware is placed in the sagger and the top and bottom are stuck together with "wadding," or round bars of coarse clay. The saggers themselves are made over wooden drums of a variety of shapes to suit the varied ware.

After this long course of preparation, the ware is now ready to be fired. And this brings us to the structure so familiar to all who live in pottery towns, the kiln.

The kiln is a huge brick chimney with a floor and ten fire holes about its circumference. It is from

sixteen to eighteen feet in diameter inside, and twenty feet or more in height, drawn over at the top in a sort of roof, in which a central opening gives vent to the fire and smoke into the chimney, which rises above it in the familiar bottle neck stack. It has a large opening in one side through which the ware to be fired is carried in. This large space within is filled with the saggers in which the ware has been packed, the placing

Placing Kiln

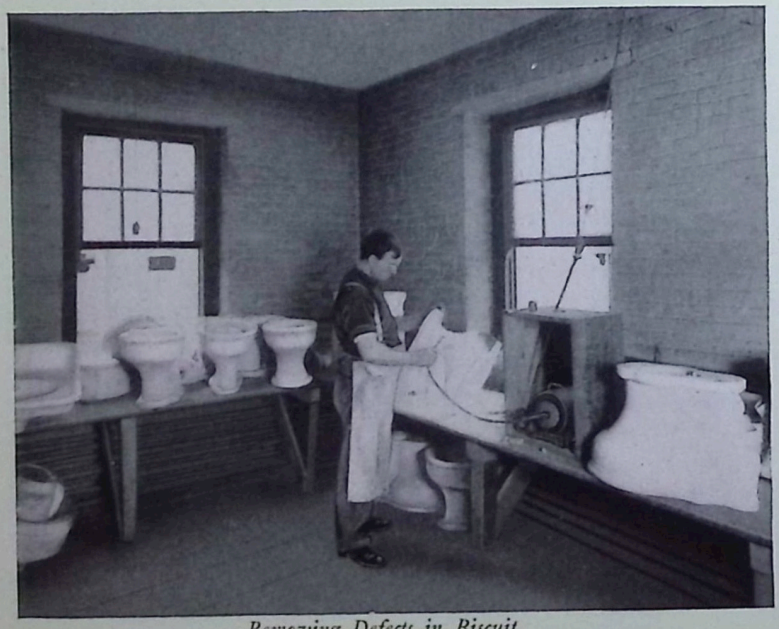
of the saggers so as quite to fill the chamber being itself an art of no little skill. The opening at the side is then bricked up and the fires are lighted underneath the kiln. To prevent the kiln from cracking open with the intense heat, it is bound round with numerous iron bands.

It is necessary to heat the kiln, and also to allow it to cool, very gradually. The fires, therefore, burn slowly at first, so that it requires twenty-four hours to reach 1,500 degrees. The fire is then quickened somewhat, and a temperature of 2,000 to 2,600 degrees is reached. Between each two of the fire holes is a "test hole" at the top of the kiln and another at the bottom. Through these holes, the degree of heat and the amount of firing accomplished are tested by drawing out small test pieces which have been placed in the kiln for that purpose. These are little cylinders of the same composition as the ware that is being fired, with a coat of feldspar or glaze on one side. By these test pieces, the effect of the fire at any point of the process may be determined. As an extra precaution, there is also used in each hole a "cone," a bit of ware about four inches high, which will bend at different temperatures, and by this the fireman may know when to check his fires. A recent appliance for determining the degree of heat and amount of

firing is the pyrometer; but the test hole is still the chief guide.

When the ware has been sufficiently fired, the fires are checked and the kiln and its contents allowed slowly to cool, about two days being taken for cooling before the kiln is opened and the ware drawn.

The ware thus far advanced toward completion is called "biscuit," and is removed from the kiln to the "biscuit ware room," where it is to receive the glaze. But before it is dipped in the



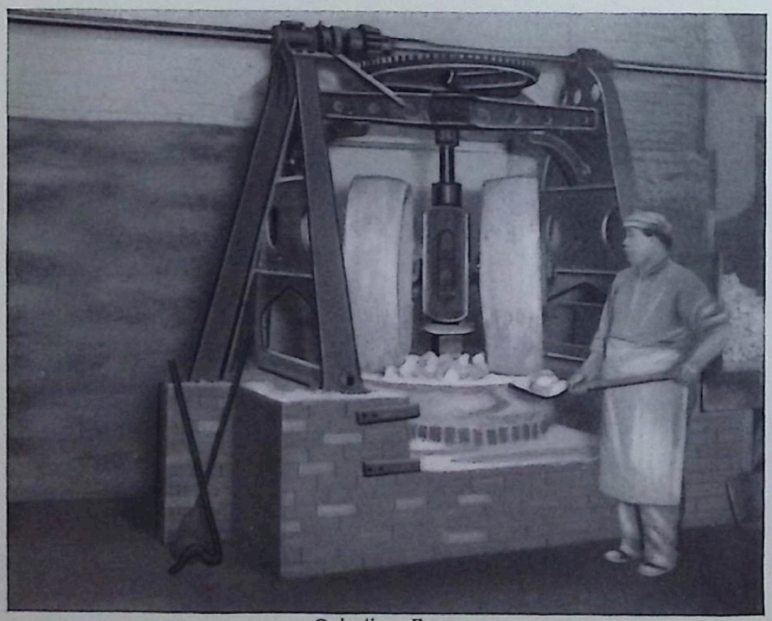
Removing Defects in Biscuit

glaze solution, the ware is carefully scoured to remove all roughness, and any small cracks which may have developed in the firing are stopped with a material which will fill up the crevice and make the piece perfect.

All the stamping, lettering, affixing of trade marks, etc., which may be necessary are done in this stage. The "printing" or "transferring" of the design to the surface of the ware is worth noticing. The trade mark or decorative design is engraved upon a copper plate. Over this plate is spread thickly a coat of the

Potter's Printing Press

color to be used in the marking. After spreading, the putty-like mass of coloring material is scraped off with a knife edge, so that the coloring remains only in the lines engraved in the plate. A piece of tissue paper is spread on the plate, and plate and paper run through a press, which transfers the lines of color to the paper. This is then cut out and stuck on the ware. The rubbing with a hard brush transfers the color from the tissue paper to the ware; the paper is then washed off and the lines of the trade mark or decoration remain on the ware.



Grinding Frett

The glaze is made from a mixture of flint, spar, oxide of lead, boracic acid, and sometimes other materials, according to the ideas of different makers. The fretts are put in a sagger and fired in the kiln, coming out from the firing as solid glass. This is broken up into smaller pieces, and the pieces ground fine under the "chaser," or revolving stones running on edge on a hard bottom. When the glass is thus ground, it is mixed with the other materials, and the mixture is ground in water, in the "glaze pans," which are huge tubs in which

Glaze Pans

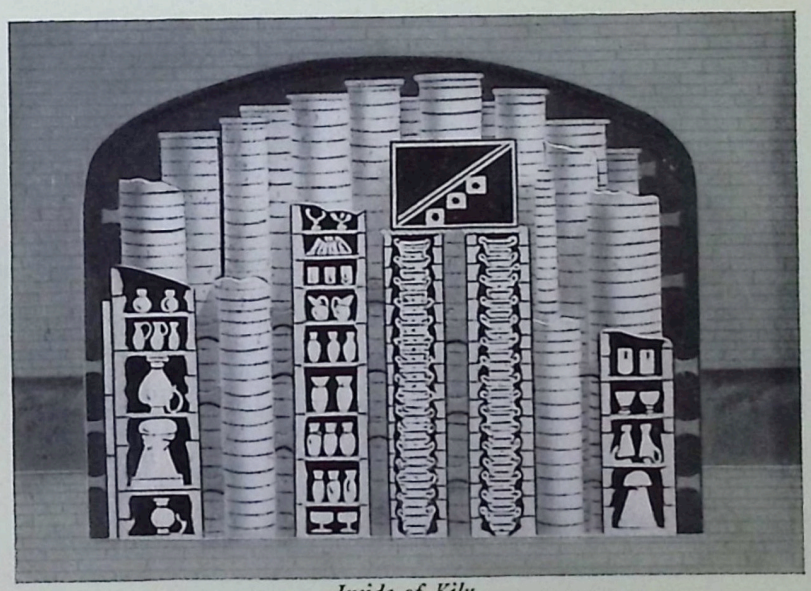
the glaze solution is ground and mixed for a week or more. It is then delivered by pumping, in the consistency of cream, in the biscuit ware room, where the ware is to be dipped.

The skill demanded in dipping is that of just the right motion to secure the equal covering of every part with the wash of the creamy glaze. The dipper handles the ware with great dexterity, making it seem a very easy process. The ware is then sponged to remove glaze from that part which would come in contact with the sagger in firing. It is then carried

Dipping

to the drying room and allowed to remain about twenty-four hours.

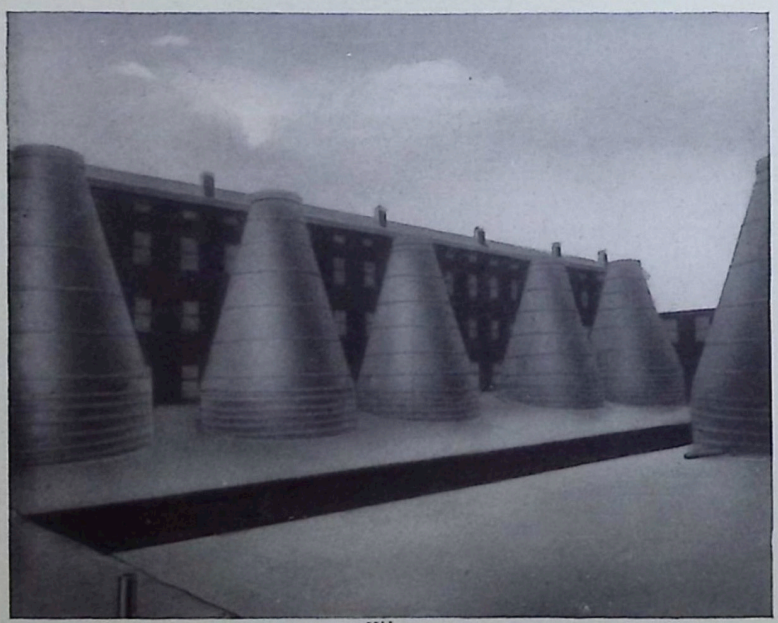
The ware is then once more placed in the saggers and fired in the "glost kiln." This firing is not quite so hot as the first firing, but brings the ware to the fusing point, so that glaze and body shall become like one material, and not an earthenware body with a coating of glaze. It is this firing that constitutes one difficulty in the manufacture of vitreous earthenware. The tendency of the ware is to warp in the kiln unless very carefully placed. The large slabs and complicated shapes



Inside of Kiln

of the sanitary appliances are likely to come from the kiln so warped as to be useless. Defective pieces must be broken up and only the perfect ware sent to the ware house.

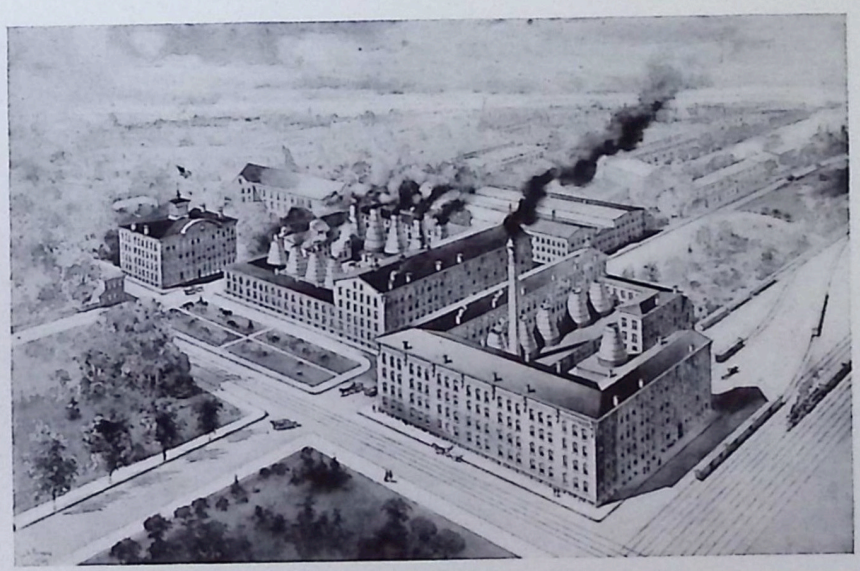
For any sort of ware upon which light colors, gilding or finer decoration are to be used, a third firing is necessary, the decoration being outlined upon the glazed ware out of the glost kiln, and then subjected to firing at a low or "cherry red" heat. Not very much sanitary ware, however, is put through this process.



Kilns

Out of the glost kiln, shining and white, the finished ware is removed to the glost ware room, where it is carefully inspected and selection made for shipping.

And so the raw clay from England, the flint from France and the feldspar from Maine have become transformed from crude, rough and useless unsightliness into forms of convenience, and often of beauty, for the comfort of the dwellings of men.



Potteries of Thomas Maddock's Sons Co., 1909

Persian Pierced Vessel
Eighteenth Century
Pennsylvania Museum

SANITARY EARTHENWARE AND ITS PLACE IN THE EVOLUTION OF SANITATION AND HYGIENE—HISTORICAL

The particular branch of the art of manufacturing earthenware, technically known as sanitary potting, is of comparatively recent origin. It arose out of the improvements made in the comfort, convenience and healthfulness of dwelling houses in England during the nineteenth century. So long as water must be brought into a house by a pump, or through a pipe from some convenient spring or stream, carried in vessels of various sorts to the living rooms of the house, and then all the waste from the house thrown upon some convenient open space, or washed out into an open gutter in the road, very simple appliances satisfied the demands of the householder. A basin in the bed room and a sink or a waste bucket in the kitchen met the needs even of the dwellers in cities. Macaulay's chapter on the state of England in 1685 gives us a glimpse of the unpleasantness of that side of life at that time and for a considerable period afterward. "Cabbage stalks and rotten apples accumulated in heaps at the thresholds of the Countess of Berkshire and of the Bishop of Durham. Saint James Square was a receptacle for all the offal and cinders, for all the dead

cats and dead dogs of Westminster. The pavement was detestable. The drainage was so bad that in rainy weather the gutters soon became torrents. Several facetious poets have commemorated the fury with which these black rivulets roared down Snow Hill and Ludgate Hill, bearing to Fleet Ditch a vast tribute of animal and vegetable filth from the stalls of butchers and green grocers. This flood was profusely thrown to right and left by coaches and carts. To keep as far as possible from the carriage road was therefore the desire of every pedestrian. When the evening closed in, the difficulty and danger of walking about London became serious indeed. The garret windows were opened, and pails were emptied, with little regard to those who were passing below." With such a state of affairs outside, even in the city of London, the primitive arrangements within the houses may be imagined. But with the introduction of sewers to carry waste and the bringing of water into the houses upon other floors than the first, the demand for improvement within the house became imperative.

There had been, indeed, from very early times, various methods of disposing of the waste of houses and of cities. Pictures remain of elaborate arrangements for conveying water and removing waste, even from the Egyptian times. But the making of these appliances convenient and healthful, for the ordinary

householder, was a matter of modern exploitation. Macaulay says of his own time that "many conveniences, which were unknown at Hampton Court and Whitehall in the seventeenth century, are in all modern hotels." Yet even then but little was known of the recent methods of sanitation. And it was not until after Macaulay's time that Doulton and Twyford began the manufacture of conveniences such as now make every modern house the home of cleanliness, comfort and elegance. The development of sanitary ware in the United States dates back to the early 70's, when the effects of a law compelling the use of drains in the city of London were felt in this country, the introduction of the mechanical water closet known as the "pan closet," which employed an earthenware bowl, and the importation of English plumbing material into this country, making a field which the potter had as yet left to the English potteries.

American sanitary ware, even in its crudest form, soon displaced the English ware, and, as the use of the water closet increased, the incentive for the potter advanced accordingly until the English ware found only a very small market, and soon was entirely displaced by the home production.

A short resume of conditions which brought about the development of the water closet is not amiss, and we find that as early as the first century,

A. D., the Roman Emperor, Nerva Augustus, commissioned the military engineer, Frontinus, to prepare a report of the condition of the water supply of Rome, which report is still extant in the original manuscript, and has been translated into English by Clement Herschell.

This report is interesting, as it shows a very liberal use of water, and tends to confirm the impression that the troughs or depressions found in the Roman thermæ or baths, were used for the purpose of carrying off fæcal matter, as our water closets do today. Herschell estimated that fifty gallons per person per day was the quantity of water furnished to Rome, and as only the patrician had any sort of water supply in his home, there was an ample volume to constantly flush the troughs referred to, which were connected at one end with the conduit, or aqueduct, and with the sewer, or cloacæ, at the other; and as the excavations at Rome and elsewhere have never disclosed what might be referred to as a water closet, although disclosing baths, aqueducts, sewers and other similar indications of the familiarity with sanitary measures, the troughs found can reasonably be regarded as used for the purpose indicated.

Probably the first instance of a water closet, in the sense that a seat was provided, is found in a castle in Normandy, built about the eighth century, and

described as "a flue open at top and bottom, extending into the room, and having a wooden edging about seventeen inches from the floor" —this height being that of the ordinary water closet today, and very likely handed down to us through the outhouse, or privy, from that date.

No evidence of the use of the water closet, other than the primitive outhouse, again occurs until about 1850, this being due to the fact that the use of sewers in London was made compulsory about that time.

During the seventeenth century, drains to carry off the rainfall were built in the city of London, says Prof. Merriman; but it was not until 1815 that they were allowed to be used to carry away sewage. But before the middle of the century a great change of opinion had occurred, and in 1847 it was made compulsory to turn all sewage into such drains or sewers, and at this date sanitary engineering may be said to have had its origin.

The first water closet used was the pan closet, and as early as 1852 it was in quite general use, and con-

tinued the favorite until about 1870, when what was known as the valve closet was introduced as a more sanitary fixture. But the improvement continued, resulting in the plunger closet, also a form of valve apparatus, and this displaced the pan closet entirely, and held its own until the all-earthenware closet drove it from the market; although there are many plunger closets still sold.

English inventors, notably Jennings and Hellyer, patented their devices in the United States, and marketed them through American agents, the trade developed being a very profitable one and continuing until about 1880, when the American sanitary ware entirely succeeded the English, largely because we had outstripped the English in improvements, having developed the washout all earthenware closet to perfection, and started on further improvements which have placed American sanitary ware in a class by itself, both as regards the quality of the ware and the sanitary perfection of the bowl.

For years the washout bowl was considered the perfection of the art, and while there were being made some other styles, notably the various types of hopper closet, the washout had the call, and there are large numbers of them still being made, notwithstanding the fact that nearly all large cities bar them by ordinance.

With the development of the washout bowl, it became evident that the potter was the determining factor in what may be termed the experimental stage, and many freak ideas were laid aside because of the impossibility of making the bowl in earthenware; and for some years the bowl itself was only a part of the completed article, as is shown in the double trap closet, which was very popular for a time, and which was dependent on the tank and other apparatus for its perfect operation.

In 1876, Wm. Smith, of San Francisco, patented a water closet which employed a jet to assist in emptying the bowl—and the development of this principle is due entirely to the potter, who had gradually and by costly experiment, become the determining factor in the evolution of the water closet.

The operation of the bowls, whether washout, hopper and trap or other type, was dependent on the tank, which again was in the hands of the firm or individual controlling the particular bowl in mind; but with the perfecting of the syphon jet bowl, the potter was independent of the tank, and very soon all concealment of the bowl was done away with and a single piece of earthenware took the place of boxings and made the hygienic bath room possible.

Having perfected the water closet bowl in operation and form, the potter found that the coarse body

employed would craze and permit the ware to discolor. The last and most important step was taken, and all high grade sanitary ware is now made of vitreous body, and the crazing of the glaze is entirely overcome.

THE WATER CLOSET AND ITS EVOLUTION FROM A MECHANICAL DEVICE TO THE VITREOUS BOWL OF THE PRESENT

A study of the development of sanitary conditions in the United States must convince that the superiority of American sanitary pottery, both as regards quality of ware and perfection of design and operation, is due, in no slight degree, to the patient and intelligent co-operation of the potter. Many fantastic ideas, absolutely impractical so far as commercial value is concerned, have been constantly submitted. These ideas, were they simply rejected as impractical, as they well might be, would leave much of merit unused.

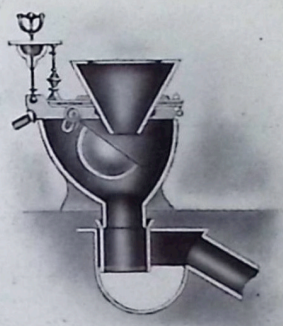


FIG. 1

However, many an inventor, having found his ideas, while meritorious, impractical of manufacture, has, through the suggestions and help of the potter, been enabled to retain the essential features of his invention, and in many instances greatly to improve upon his own crude ideas.

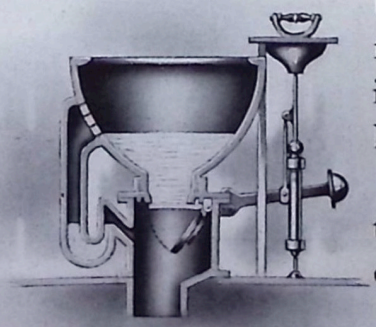


FIG. 2

As indicated on another page, the mechanical water closet had its origin in London, although the

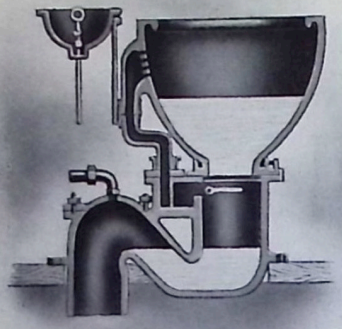


FIG. 3

hopper closet, developed, no doubt, from the lead soil pipe enlarged into a funnel above the floor, antedated the pan closet.

Until about 1865, the pan closet was in practically exclusive use, the type requiring the D trap below the floor (figure 1), having the call; but about this time the valve closet came into favor, and it is amusing, from our day, to read what sanitary engineers of that time thought of the valve closet.

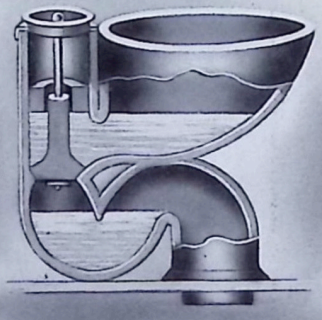


FIG. 4

S. Stephen Hellyer, in a book he calls "Sanitation of the Home," published in 1877, has this to say:

"The pan closet takes its name from the copper pan, which keeps a small quantity of water up in the basin. The valve water closet apparatus (figure 2) is chiefly fixed, in good houses, for private and visitors' use and the pan closet for servants' use.

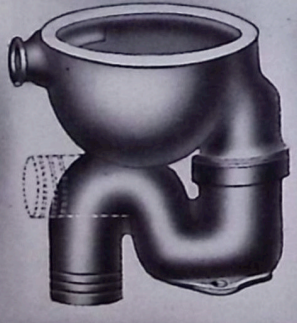


FIG. 5

"Let us examine the merits of each. The valve water apparatus consists of a deep, glazed earthenware basin, which is kept about two-thirds full of water by means of a

valve at the bottom, and from this valve there is a short conducting pipe, or container, into the trap (figure 3).

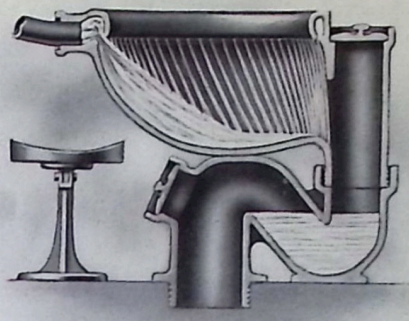


FIG. 6

"No part of this apparatus can, therefore, become foul or offensive, for there is no place where soil can accumulate.

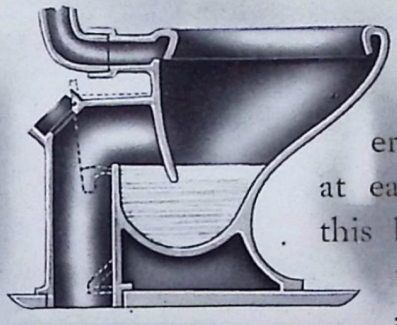


FIG. 7

"And if the handle is properly pulled up, as far as it will go, at each usage of the water closet, this basin can be kept as clean and free from unwholesome matter as a toilet basin in a bed room. The writer has always been puzzled to understand how the pan closet has become so great a favorite with the public and so extensively used by the craft. The only 'bliss' that the public can have about so foul a thing is 'ignorance' of its nature; but what excuse to make for the plumber I know not, except that it was the custom of their fathers to fix a pan closet, and this has become law with them."

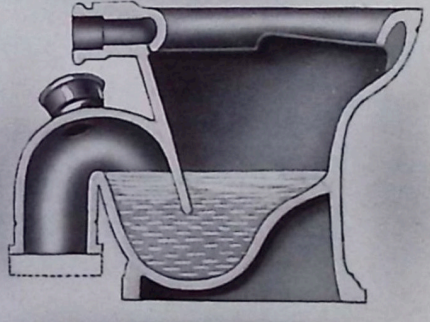


FIG. 8

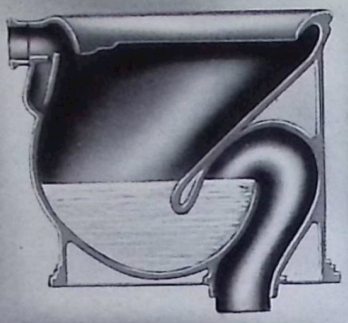


FIG. 9

Mr. Wm. Eassie, in his book, "Healthy Homes," published by Appleton in 1872, illustrates several pan and plunger closets, among them several by Jennings, and says: "The above closets are, in my opinion, unworthy of Mr. Jennings as a sanitary engineer. His best closet is the patent valve closet and trap formed in one piece of best white ware (figure 4). The pan has a side outlet leading through a conical valve and seat into a syphon below."

The various types of valve closets were followed by the washout closet, the first example of which was made in two pieces, bowl and trap, by Twyford (figure 5), about 1875, and was improved by the "Lambeth" (figure 6), Doulton's Simplicitus washdown (figure 7), also in two pieces.

Col. E. C. S. Moore, R. E., in his "Sanitary Engineering," published in 1898, illustrates Shanks's "Compactum" washdown closet (figure 8) and the "Deluge," (Twyford), (figure 9), which he describes as "made with a patent non-fouling recessed back, and a water surface of sixty-three inches and a water seal of two inches in the trap." This is the first reference to a non-fouling feature of any kind. Col.

Moore also illustrates and describes "Twycliffe's patent syphon pedestal water closet basin" (figure 10), as "claimed to be a perfect safeguard against sewer gas and evils arising therefrom, practically noiseless in operation, simple in construction, reliable in action; that there is no complicated mechanism, and that it can be as easily fixed as an ordinary basin. It has an extra large water surface and a great depth of water seal (3 inches), and also a large body of water in the basin to deodorize and reduce the soil."

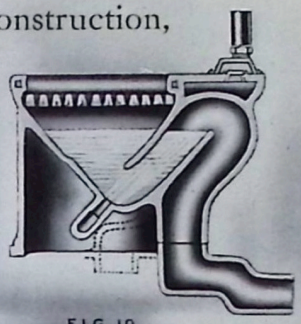


FIG. 10

The syphon closet, however, was developed and perfected in the United States, while, to the present day, the washout and washdown closet is used, to the practical exclusion of the syphon closet, in England and Europe generally.

A study of the illustrations, all of English closets, should be of interest.

Italian Majolica Dish
Eighteenth Century
Pennsylvania Museum

HE DEVELOPMENT OF SANITARY WARE IN THE UNITED STATES

We come now to the water closet in America, and the first thing to impress itself forcibly on one is that the development of the water closet with us is found always a little in advance of sanitation, while in England and Europe it has been, and is today, hampered by and the result of conditions forced upon the trade.

The American potter found the English pan closet on the American market, and made it as sanitary as its crude principle permitted; he made the American type of the plunger closet possible, meeting in this closet for the first and only time in the history of sanitary ware the glass worker in the Hartford glass closet in the early 80's—and the potter won.

Perhaps the most convincing method of demonstrating how important the potter has been in the evolution of sanitary ware is to show the Patent Office drawings of the more generally used types of bowls which have come and for the most part gone, and compare such with the bowl as actually made by the potter.

This will necessarily eliminate many inventions of merit, so far as theory goes, as, unless the potter could practically manufacture a new idea of bowl, it carried no value, and in showing the ideal and the practical

article, only such as have had a market can be shown, as space will not permit of a complete illustration of the several types of the same idea which had a certain vogue in different localities.

In 1870, the manufacture in the United States of plumbers' earthenware was confined to the round wash bowl; but a few years later the Bedfordshire urinal was added, this being closely followed by the French closet, the tall round hopper and a few other articles round in shape and easily made, the round bowl for pan closets being such.

The pan closet, as a complete article, was never patented in the United States, although several pan closets, as the Carr, the Bartholomew and the Harrison, were marketed as "patented"; whereas, the patent was for only a detail, such as the pan lever, the pan itself, or even the method of fastening the bowl to the closet; and this also applies to the plunger closet. But while the pan closet seems to be an assembling into close relation of the principles of the slop or drain closet, the principle of the plunger closet was patented in the United States by James T. Henry and William Campbell (figure 10A), in 1857, under patent No. 18,972, this being also the first United States patent for a water closet.

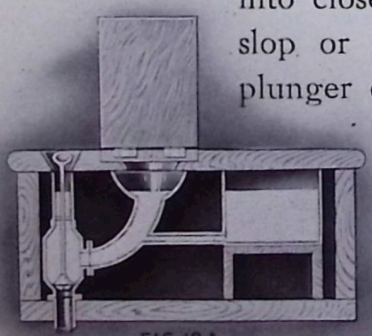


FIG. 10 A

Consequently, the various plunger closets known as the Jennings, Zane, Demarest or Clow "patents" were patents on parts of the closets only.

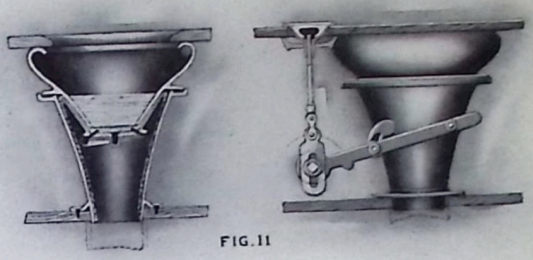


FIG. 11

The illustration of the W. S. Carr pan closet (figure 11) is given as typical of the American pan closet, and comparison with the English type is suggested; while the drawings of the Jos. Zane plunger closet (figure 12) will show how slight the difference in the various plunger closets might be, Mr. Zane using the body of the closet to place his overflow, while Mr. Demarest shows same in the plunger (figure 13). George Jennings having also patented a plunger in 1876, both the Carr and Demarest patents shown being issued in 1877.

The share of the potter in these closets was small, only the bowl being of earthenware, and while the bowl for the plunger closet was never patented, there were several patents granted for pan closet bowls—the first being in 1859 to Wm. Boch, Senior, and herewith shown (figure 14), being exceptionally well drawn; and in 1877 Chas. Harrison, of New York, patented a bowl and a drip tray for same, two patents being allowed.

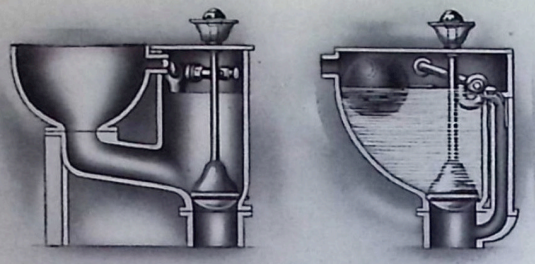


FIG.12

These two inventions marked an epoch in the manufacture of sanitary ware, being the forerunner of the flushing rim now in general use.

In his specifications for the bowl (figure 15), Mr. Harrison says: "My improvement relates to that class of water closet bowls in which the shell of the bowl inclines inwardly toward the soil opening. In this class of bowls, the stream of water for washing the bowl, which is usually injected through a horizontal pipe, is thrown upward by centrifugal action; and if the head of water is very great, it is liable to overflow, owing to upward deflection of the stream by the inclined circular surface of the bowl.

"My invention consists in providing such a bowl with a swelled front, whereby the tendency of the stream of water to rise is diminished after it has passed about half way around the bowl, because of the less abrupt resistance which the forward portion of the bowl presents. There is an obvious advantage in the oval shape which the bowl has, in that it adapts the closet to the use of a person sitting in an erect position; the size of the pan required is not materially increased and the rearward location of the soil opening is retained."

In describing his drip tray (figure 16), Mr. Harrison says: "My invention relates to that class of water closet bowls in which the bowl is surmounted with a drip tray, which conforms in its outer shape to the opening in the wood work surrounding the bowl, and is perforated with a hole having the shape of the upper end of the bowl. Such trays usually heretofore have been made of lead, and it has also been proposed to make them of one piece with the bowl. The latter mode, however, makes the bowl very expensive and awkward to transport."

There are two deductions to be made from Mr. Harrison's claims in regard to these inventions: the first being that the English pan closet had been greatly improved in this country, as is evidenced by the almost universal use of the drip tray to take care of the swirl of water which escaped over the edge of the bowl under a strong head of water (and old time plumbers will recall how troublesome this was); and, second, the very serious problem the potter had to contend with, since Mr. Harrison thought it impractical to make the bowl and drip tray in one piece. The potter did, however, make the Harrison drip tray, as

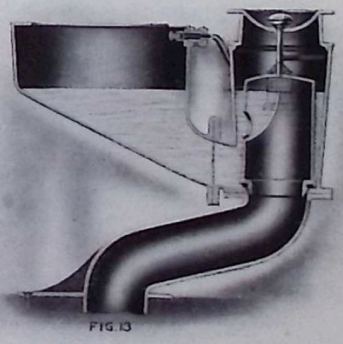


FIG. 13

FIG14

it became known in the trade, in one piece, and it found a very large sale, the oval bowl being all that Mr. Harrison claimed for it, and resulting in the change of the shape of water closet bowls in general, the oval hopper being the first piece other than drip trays to be made with oval top.

The Harrison bowl and tray were influential in bringing the washout bowl to the front, as they made possible the dropping of the lead tray which had been very largely used, and the sight of nothing but porcelain below the seat must surely have been a great factor in encouraging further development along the same lines.

While the Harrison drip tray undoubtedly was the turning point in the development of sanitary pottery, it did not balance the many objectionable features of the pan closet, nor did the devices employed by Zane, Jennings, Demarest and others make of the plunger closet a sanitary fixture.

The drawings of the Zane and Demarest patents, covering details of the plunger closet, are interesting mainly because they show what features were, at that time (1877), considered of importance. Zane described his invention as "having for its object the follow-

ing purposes: First, the perfect flushing of the bowl and outlet pipes at every discharge of their contents. Second, in preventing the escape of sewer gas and unpleasant odors from the bowl. Third, in so constructing my improvements that they are applicable to any of the bowls commonly in use." Mr. Demarest says: "The object of my invention is to insure a proper flow of water through the closet; to prevent the accumulation of any offensive matter under circumstances where its odor can pass out into the room; to operate the valve with uniformity regardless of the pressure, and to give easy access to all parts of the closet for cleaning purposes."

These descriptions show conclusively that the plunger closet was proving anything but satisfactory; that it was difficult to secure proper flushing; that it was odorous, and that it required frequent repairs. And it may be said that all of these defects were present in the pan closet also.

The welcome accorded the Harrison drip tray can well be imagined, and it was only a natural sequence that the washout, all-earthenware closet should now be given much consideration.

In the washout bowl, as in the pan and plunger closets, the American potter found the English type in the field, and

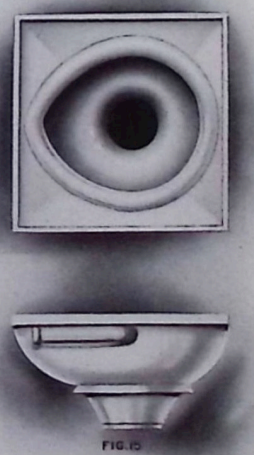


FIG. 15

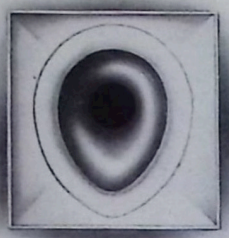


FIG 16

the first American washouts were patterned after the English bowl, with a deep pan or basin and a shallow seal trap; but the uncertainty of securing a discharge of the matter deposited in the basin soon made a change necessary, and several devices were patented to that end, prominent among which was a deflector (figure 17) by John Reid, issued in 1884, and described as follows: "In water closets in which there is a concave bottom and a dam at one end, over which the soil is washed into the discharge pipe, difficulty has arisen in obtaining a sudden and powerful rush of water to sweep the basin clean and the same time to wash the sides of the basin. My improvement relates to a deflector especially designed for this character of basin. Said deflector is intended to be made in porcelain, the clay being moulded and the deflector placed inside the basin and luted, and the basin baked and glazed; but this deflector might be made of any suitable material and attached to its place."

However, the washout bowl was perfected by the potter, and became the first article of sanitary ware sold without consideration of what means were to be employed for its operation, and incidentally gave the

potter a start on the road to independence from hampering precedent.

But the popularity of the all-earthenware bowl brought forth a host of "special combinations," aiming to retain the large water surface, which was the best feature of the plunger closet; and the double trap closet, popularly known as the "pneumatic closet," was brought to prominence by the inventions of Jas. E. Boyle, one of which (figure 18), patented in 1882, is herewith shown as typical of all.

An extract of the one hundred and fifty lines of Mr. Boyle's specifications will interest and at the same time show that the lesson of the complicated pan and plunger closets had as yet been unheeded, as Boyle says: "My invention relates to what are known as 'water surface' closets, or those in which the soil is deposited into a receptacle containing water. Above the bowl and near the ceiling of the room is placed a tank, fed from the service pipe of the building through a self-closing float valve or ball cock, whereby a nearly uniform level is at all times secured. A chamber, which serves both as a flushing and a suction chamber, is formed in the tank. The suction pipe enters the chamber, and from the chamber a pipe leads to the roof or into a chimney,

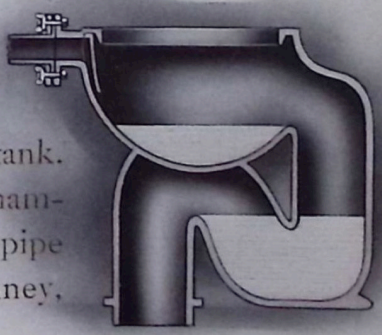
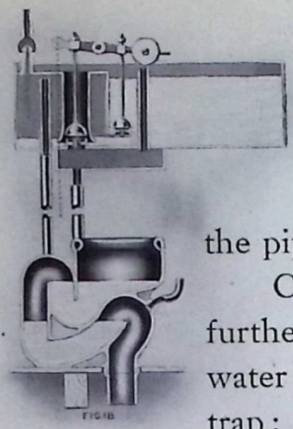


FIG. 17



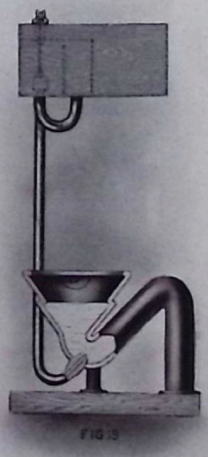
or otherwise communicates with the open air in any known way. A check valve is interposed between the pipe and the chamber."

Claim one of Mr. Boyle's patent gives further evidence and reads as follows: "A water closet bowl forming one leg of a trap; a second trap below the first; an exhaust pipe leading from the air space between the two traps and terminating near the top of a flushing chamber; the said chamber provided with inlet and outlet valves, and a flushing pipe leading from the outlet valve thereof to the bowl, all in combination with a suitable means, substantially as hereinbefore set forth, for preventing further retardation of the flow of flushing water after the bowl has been syphoned by the partial vacuum formed by the descent of the water in the flushing chamber, thereby augmenting the after-wash and insuring the final filling of the bowl."

The complicated device embodied in the pneumatic type of closet, while possessing many meritorious features, was far from perfect, the failure of every detail to operate in unison frequently resulting in the overflow of the bowl through failure of syphonic action, and made the lead safe employed below these closets, and the "tell tale" pipe running to the basement most desirable adjuncts of the combination.

The demand for these special bowls was such that the potter necessarily found himself of vastly greater importance than ever before, as on the perfection of the earthenware, more than any one thing, depended the operation of the entire outfit. And with the knowledge that about anything desired could now be made in one piece of earthenware came many inventions, all designed to simplify the operation of the bowl, and to do away with the casing or wood work still employed to a greater or less extent in placing the closet.

In 1880, there was granted to Wm. Smith, of San Francisco, a patent on a water closet (figure 19), the elements of which were essentially those of the syphon jet bowl of today, and while Mr. Smith had the idea, and is now conceded to be the originator of the principle of the syphon jet, the bowl was not developed for years after it was first offered to the potter, owing to the very uncertain notion of Mr. Smith himself, who, with that, perhaps, pardonable arrogance of the average inventor, insisted that everything should be done as he wished, and left the potter no discretion whatever, with the usual result—that a practical piece of ware was never made until the potter was at liberty to follow his own ideas.



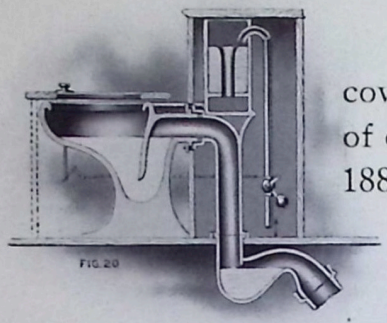


FIG. 20

The Smith patent, issued in 1876, covered the use of a jet as a means of emptying the basin, while that of 1880 contemplates the use of a tank as a means of water supply, the specifications reading in part: "My invention relates to that class of water closets having elevated tanks from which water is received to flush the basin and soil pipes. The object of my invention is to provide 'a self-operating and self-emptying closet,' and at the same time, after the basin has been flushed, a certain quantity of water will be received from the tank to fill the basin, where it will remain until use is again made of the closet."

The use of a jet in water closet operation must then be conceded to Wm. Smith, which is important when two patents issued in 1882 and 1883 are considered.

Both these patents had an important bearing on the development of the water closet, that granted in 1882 (figure 20) being issued to Col. Geo. E. Waring, a sanitary engineer of the highest repute, and while referring to the use of a jet, disclaims its utility, as will appear from his specifications: "This invention has reference to an improved method for supplying water to water closets for discharging their contents and for refilling

them with clean water after such discharge. The form of these vessels, when constructed according to my invention, is such that they retain water to a considerable depth, this depth being regulated by the height of the overflow point or bend of the outlet pipe or syphon.

"The vessel standing full of water or liquid wastes to this overflow point, the outlet pipe is made to act as a syphon by adding sufficient volume of water. I am aware that prior to my invention water closets, etc., were constructed to hold water to a considerable depth by an elevation of the outflow pipe; but the contents of such closets were discharged either by the velocity of a strong jet of water, and without true syphonic action, or by introducing in the outlet limb of the exit pipe a jet of water or current of air, which, while it may have produced a true syphonage, did so by means different from those I employ. I am aware, also, that prior to my invention, automatic flushing tanks having for their object the cleansing of drains were constructed to be discharged by the operation of syphons; but such flush tanks were not intended to be used as water closets, nor were they suited to such use."

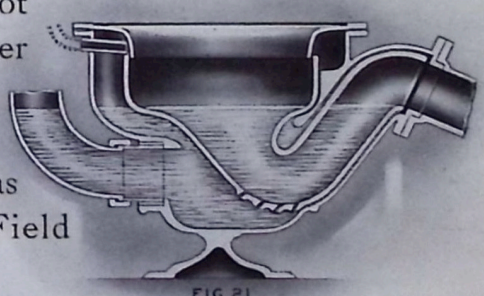
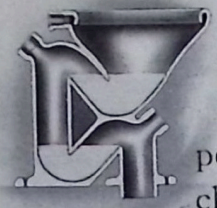


FIG 21

Col. Waring's closet was a modification of the Field



principle of syphonage, and is important only in that it was, as will appear, an important factor in the evolution of the water closet.

FIG 22

The second patent referred to (figure 21) was issued to J. Pickering Putnam in 1883, employing a unique idea, which was later developed and marketed as the "Sanitas" Closet. The specifications read, in part: "One part of my invention consists in the employment, with the basin of a water closet or similar receptacle of a bent pipe or passageway for flushing water, one arm of which enters the basin at any required place to deliver the flushing water, while the bend in the pipe or passageway is so far below the delivery end as to be normally full of water, and a distinct feature of this portion of the invention consists in narrowing the bent pipe or passageway at some place below or near the normal water level therein in such manner that the flushing water will rise noiselessly in the delivery arm. Another part of the invention consists in a basin for a water closet, provided with an inlet for upper flushing and an inlet for lower flushing, both opening out of a single main inlet, whereby one joint or connection is required to join the closet or similar receptacle with the source of water supply."

The theory of Mr. Putnam's invention may be briefly described as a water closet operated by a tank, the bowl having a peculiarly constructed arm supplying the jet and flushing rim, and designed to hold the water in the tank on the principle of a bottle with its neck submerged, thus holding both the flush pipe and tank level until released by suitable means, when a practically noiseless operation of the bowl resulted.

While the Smith, Waring and Putnam patents were issued in 1883, it was some years before the final assembling of the principles these three patents disclosed were combined in the perfect closet as it is known today; and in the meantime experiment, both on the part of the inventor and the potter, was constantly carried on, a few of the leading productions being referred to very properly here.

In 1880, Henry Owen, of London, England, patented a water closet (figure 22) resembling that of Col. Waring, and which is described as follows: "I make in earthenware a pan with a trap at the bottom, formed by arranging the outlet from the pan to take place through a passage which inclines upward, so that water is always left at the bottom of the pan sufficient to cover the lower

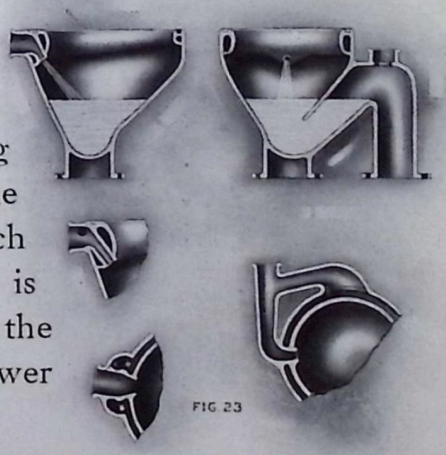


FIG 23

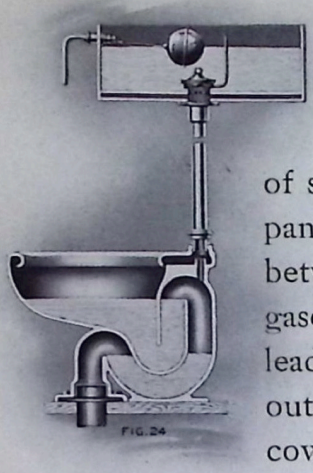


FIG. 24

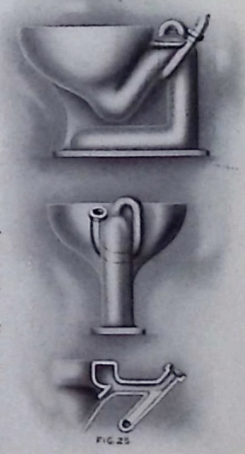
end of the outlet passage. Below this first trap there is a second trap of similar construction formed with the pan in one piece, and from the space between the two traps is an outlet for gases, which is connected with a pipe leading to a ventilating shaft, or carried outside the wall and provided with a cowl, by which the gases can find free exit. A cleaning out opening is provided in case of stoppage."

In 1881, Samuel S. Hellyer, of England, assigned to Henry C. Meyer a patent issued to him (figure 23), which he describes as follows: "My invention relates to improvements in what is known as the 'Artizan' water closet, referred to in my specification of United States patent, dated October 28, 1879, whereby a more effectual cleansing and flushing of the basin is insured than has hitherto been obtained. It is very desirable to have the water line higher in the basin than in the said Artizan closet, so as to insure the presence in the bottom of the basin of a sufficient amount of water to cover the lower part of the front sloping surface; but in order, with this increased depth of water, to insure that the paper shall, nevertheless, be readily carried away, in lieu of tending to float on the surface and remain in the basin, I employ, according to my present

invention, in combination with a water closet basin or (which I prefer) with the modified form of rim hereinafter referred to, and shown in my drawings, one or more auxiliary jet nozzles passing either through, over or under the flushing or other rim of the basin and disposed at such an angle or angles as to throw one or more separate jets down into the center of the basin."

Mr. Hellyer, who referred to the plunger closet in such glowing terms, followed the English use of the jet, and preferred to have it strike the water surface rather than to enter below the water, as did Smith. But there were few of these bowls made, the importance of the Smith idea of a jet at the base of the discharge pipe being generally realized; but there were some who thought it entirely impractical, and these two wings of invention kept the potter busy experimenting to develop crude, but nevertheless clearly meritorious, ideas.

This condition prevailed practically from 1880 until 1890, when several inventions were made which found a market and became important for that reason.



Wm. Scott, adhering to the double trap idea, simplified the Boyle Trombe principle, his ideas being clearly shown in the drawing of the patent (figure 24) issued to him in 1890; while Wm. Howell, in a patent (figure 25) granted in 1890, also dispensed with the

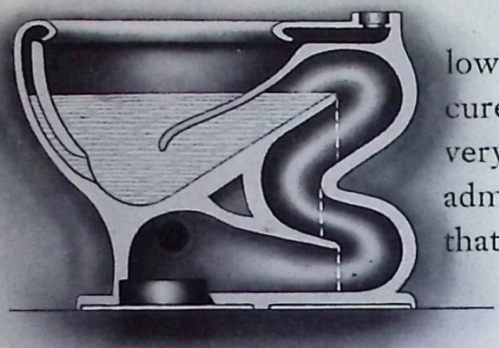


FIG. 26

lower trap entirely and secured, all things considered, very good results, very frankly admitting in his specifications that "my invention consists of an improvement in the water closet shown and described in the patent of Thomas Kennedy, 1888, the object of my invention being to supply both the bowl and syphon jet of such water closet by means of one pipe and to dispense with the necessity for trapping this pipe in the service box or reservoir of the closet." The Kennedy invention employed two pipes, one for the rim flush and the other to enter the upper end of the long leg of the syphon, which, as it communicated with the sewer directly, was trapped in the tank and necessarily interfered with the proper operation of the bowl.

In 1890, another patent (figure 26) was granted C. R. Schmidt, of Baltimore, Md., showing the curved duct which was long thought essential to a perfect closet, and claims in his specifications: "My invention is in the nature of an improvement upon what is known as a 'washout syphon closet,' and consists of an all porcelain hopper and trap with flushing rim and a special passage leading therefrom to the bottom of the hopper, and having also a bent or tortuous discharge outlet,

forming a syphon above the level of the floor, ' whereby both suction and force ' are used together for emptying the hopper, which normally stands filled to a considerable depth with water, which is taken from a tank located four or five feet above the level of the floor."

In this patent for the first time reference is made to securing both suction and force, but the placing of the jet pipe at the front of the bowl and supplying it from the flushing rim was fatal to closet operation, and the problem was still unsolved.

But, again in 1890, Robert Frame and Chas. A. Neff, of Newport, R. I., were granted a patent (figure 27) for which they claimed much, and, as a decision of the United States Court of Appeals held this closet to combine basic essentials of syphonic action as applied to water closets, more than ordinary consideration is due it.

The specifications of this patent partly state: "Our improvement relates to the construction of water closets, urinals, slop hoppers, etc., which hold water at a fixed level, being the level of a permanent overflow point to be discharged on additional water entering the bowl by syphonic action, and it consists of a new and improved device for inducing this syphonic action, also of a device for reducing the noise made in such closets by the

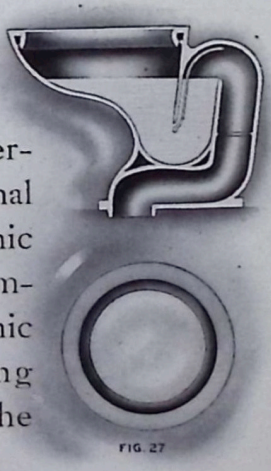


FIG. 27

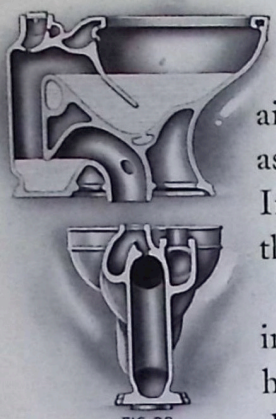


FIG. 28

'breaking' of the syphon when it takes air at the mouth of the receiving limb as the closet is discharged of its contents. In syphon closets heretofore constructed, this noise has been a serious objection.

"We are aware that prior to our invention vessels have been constructed holding water at a permanent level and discharging by a syphon brought into action by the addition of water to their contents. Such a one is the water closet invented by George E. Waring, Jr., and described in patent No. 266,404, wherein it is stated that 'the mouth of the discharging syphon has a discharging limb which delivers to a weir chamber, or false trap, or other form of obstruction, so constructed that when the outflow of the syphon is greater than the capacity of the free space between the mouth of the syphon and the bottom of the overflow of the weir chamber, or false trap, or between the mouth of the obstruction, and the mouth of the syphon becomes sealed or closed against the admission of air.'

"As soon as this closing takes place, the air between the water in the receiving limb and the water in the weir chamber, or false trap, is confined, and water continuing to flow through the discharging limb carries this air with it until it becomes so rarefied as to be

unable to withstand the normal atmospheric pressure on the water in the bowl, syphonic action takes place and the contents of the bowl is discharged. It is not thus that we confine and rarefy the air in the discharging limb of our syphon and produce the discharge of the contents of the water closet. The operation of our invention is as follows: Water stands in the bowl to the height of the overflow point. On additional water being admitted to the bowl, the level of the water is raised and it overflows. Descending through the discharge limb, a part of it strikes on the restriction and is deflected across its aperture and forms a film, or spray, which partially confines the contained air above it in the syphon. Water continuing to flow into the bowl passes through the air thus confined and carries part of it with it. This action continues until a sufficient amount of air is thus withdrawn as so to rarefy it that it is unable to sustain the pressure of the normal atmosphere on the water in the bowl and syphonic action thereupon ensues by which the contents of the closet is discharged."

The description of syphonic action here given, together with a study of the drawing, would make it appear a very simple matter to construct a perfect closet, but the rarefication of air

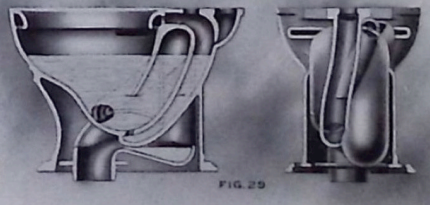


FIG. 29

FIG. 30

necessary to syphonic action did not always occur, and then the bowl overflowed, or the water rose to such a level as to make the operation uncertain should the tank empty before syphonic action started, thus leaving the bowl contents undisposed of.

Notwithstanding the fact that the claims of this patent have been held to fully cover the essentials of a perfect bowl, the problem was not yet solved, and it became more than ever clear that neither perfect nor positive operation seemed possible without the use of the jet, and several very ingenious adaptations of the jet principle were patented and placed on the market, two of these being herewith shown, as demonstrating to what perfection the crude beginning of sanitary ware had progressed and how widely separated were the ideas of the inventor, from the very simple apparatus described by Frame and Neff to the complicated piece of ware shown in the patents granted to Fred Adee in 1893 and to Frank A. Wells in 1902.

Both these patents claimed the use of three jets: one into the sewer below the bowl, one into the discharging limb of the bowl and one below the water level in the bowl, as that shown by Smith.

The specifications of the Adee patent (figure 28) are in part: "The main object of the invention is to provide a bowl of such construction that its contents, when the bowl is being used, will be quickly and thoroughly removed, and of such construction that an objectionable sucking or gurgling noise will not be produced when the bowl empties, and to prevent the contents of the traps, after the main flushing has taken place, from being syphoned out, as is the case with many old styles of bowls."

The Wells patent (figure 29) specified: "The objects of my invention are to provide improved means to prevent syphoning when a volume of water is poured into the bowl of the closet, and to assist the proper syphoning and at the same time to prevent gases rising from the soil pipe from passing into the room; and to these ends my invention contemplates novel details of improvement."

These two closets were marketed as "specialties" by two different firms, but, about 1893, the problem of producing a closet which would operate perfectly without regard to what means were employed, whether high tank or low tank or flushing valve, had been practically solved, and there was very little call for any special type of bowl;

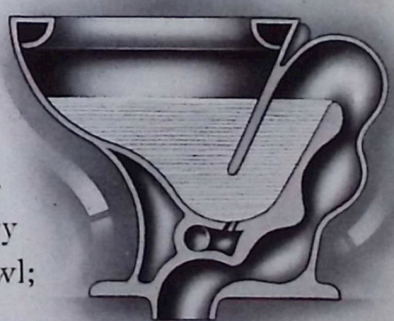


FIG. 31

FIG 32

but during all the time the development of the closet proceeded to the bowls of today Wm. Smith was engaged in exploiting his idea, and to his persistence in no little degree must credit be given, and the subject could not be dismissed without including the two patents granted to Smith in 1893, one of which (figure 30) he assigned to Dale and Davis and the other (figure 31) to the Willets Manufacturing Co., both engaged in the manufacture of pottery at Trenton.

Smith's ideas as to syphon limbs in a closet bowl were no doubt the result of many experiments made for him by the potters, and the fact that the manufacture of the bowls was undertaken by practical potters is but another evidence of the perfection to which the art had advanced.

However, the fact that none of the closet bowls described has survived is the best evidence that none possessed the requisite merit to withstand the test of time, while the ndisputable fact that the water closet as made today is the result, not of any particular invention, but of patient and untiring experiment on the part of the potter, must be conceded.

The syphon washdown bowl of today is a modification of the Frame and Neff idea; but the con-

struction of the bowl is not according to their ideas, and produces a far superior action with practical certainty.

The syphon jet bowl, as made by all potteries, is a combination of the Smith jet with the Putnam "inlet for upper flushing and an inlet for lower flushing, both opening out of a single main inlet, whereby one joint or connection is required to join the closet with the source of the water supply," and the Waring adaptation of the Field principle of securing syphonic action by automatic temporary obstruction of the discharge limb of the vessel which it is desired to empty by syphonage.

The development of the water closet, the acceptance of principles of operation offered by the use of the jet and the improved ability of the manufacturing potter to turn out work with a very small percentage of loss, but far superior to the crude ware offered by Thos. Maddock in the early '70's, brought about a revolution in the methods of installing sanitary plumbing; in fact, it may truthfully be stated that the advance of the potter, as evidenced by the ability to produce anything desired in water closets, forced the discarding of the unsightly casing employed with the hopper and in the early stages of the washout bowl, and with these improved conditions it became evident that all unnecessary encumbrance must be dropped, and one of the

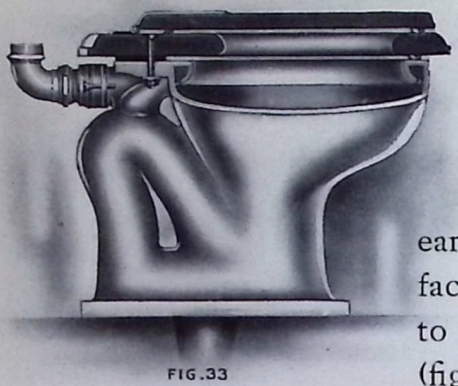


FIG.33

most important details was the method of connecting the bowl with the water supply. That this problem was an early one is apparent from the fact that in 1880 there was issued to Thomas Maddock a patent (figure 32) which embodies all the essentials of the "spud" in use today, and a consideration of the specifications accompanying this patent show that after seven years of work a departure from a round piece of ware and the use of a "flushing pipe" was considered invention, the specifications reading in part: "It is the twofold object of my improvements to simplify the construction and mode of application to water closet bowls of the devices by which the flushing water is introduced and also to provide a more secure joint for the metallic supply pipe with the outer end of the earthenware flushing pipe. The first part of my invention consists of an earthenware flushing pipe, which is inserted bodily through the side of the bowl and joined thereto by the union of the wall of the bowl with the periphery of the flushing pipe. The flushing pipe is introduced at the proper angle to enable it to direct a jet of water against the inner wall of the bowl near the top, and the inner end of the flushing pipe takes the place of the fans, or spreaders, here-

tofore employed. The second part of my invention consists in forming a conical recess at the outer end of the flushing pipe, and in permanently securing therein a flanged metallic tube provided upon its projecting portion with a screw thread for receiving an ordinary coupling nut."

Claim 2 of the patent reads: "In a water closet bowl, the earthenware nozzle of the flushing device, provided at its outer end with the interior annular conical recess, in combination with the flanged metallic coupling pipe, and the annular mass of cement, substantially as and for the purpose set forth."

The "interior annular conical recess" and "the flanged metallic coupling pipe" are found on all water closets today, thirty years after Thos. Maddock first used them, the only change being that, instead of the cement used in 1880, a rubber gasket is now employed, although Mr. Maddock soon found that the cement was not absolutely certain to make a water tight joint, and used a rubber washer and lock nut to add security, and it was accepted in the trade as the best connection offered, which was not a small factor in adding to the reputation Thos. Maddock had established for the reliability of his ware.

The constantly diminishing use of wood in any form around the water closet, aside from the seat, gave rise to a demand that the seat should be fastened direct

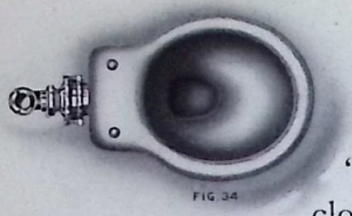


FIG. 34

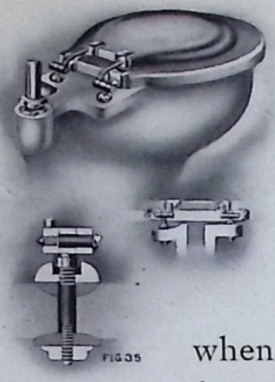
to the bowl, and in 1893 a patent (figure 33) was issued to Edward Hammann, described as follows: "The most improved sanitary water closets are not incased and are accessible around the exterior surfaces in consequence of standing at a sufficient distance from the walls, and in some instances metal hopper closets have been provided with hinges receiving a swinging seat that is counterbalanced and remains in an elevated position. With some of the porcelain closets, a wooden wall plate has been provided, supported on brackets or connected to the wall and receiving the hinges of the seat and cover. In practice I have found that this is inconvenient, especially where the walls are of tiling or other ornamental substances, and such wall plates interfere with the easy access to the rear portion of the closet bowl. My present improvement is adapted to closets made of porcelain, and I provide flanges (figure 34) upon the closet at the rear portion thereof between the projecting tubular inlet and the hollow rim of the bowl, so that such flanges are supported and are not liable to be broken, and through these flanges the attaching screws for the stationary plate of the seat pass, and I introduce elastic material, such as rubber, between the seat plate, preferably by ornamental strap hinges, so that the cover can swing upwardly and be inclined

backwardly, and the seat itself can be raised whenever necessary."

This device was simply the adapting to a porcelain closet bowl of the seat shelf in use on the Philadelphia hopper, in cast iron, as referred to by the specification, and its success was dependent on the ability of the potter to provide the required "flange"; and that the material should be sufficiently strong to withstand the shock and strain of a seat and cover, however carelessly these may be used; and, as usual, the potter met the requirements and the seat attachment came into general use.

However, the strip of wood referred to in this patent was objectionable, and in 1896 a patent (figure 35) was granted to David D. Buick, of Detroit, Mich., which the specifications describe: "My invention relates more specifically to the construction of the hinge used for connecting the seat and cover with the crock; and it is my object to provide means of attachment that may be readily adjusted to compensate for any irregularities in the crock, so as to bring the hinges always in line."

However, the potter was now making his sanitary ware with such uniformity and perfection that the adjustable feature of the Buick patent was not essential, and the hinge shown is now made without considering any irregularity in the earthenware; in fact, quite the



contrary, as the seat attachment is now standardized, and the holes for the hinge post are of uniform size and location, so that any seat will fit any closet if the standards are followed.

It will be seen that from 1873, when Thomas Maddock began the manufacture of sanitary ware, which others had thought impossible, until 1896, when the last improvement to make of the water closet bowl a really sanitary fixture, standing alone with only the wooden seat and cover other than the ware itself, was only a short twenty years, but the months and weeks and nights and days of experiment necessary to this condition will be known only to the potter, to whose persistent faith in himself and his art is due the sanitary perfection of the American home.

The closet bowl having been perfected, the potter was again called on, it having been found that the tanks operating the closets, made of wood and lined with copper very largely, were not entirely in keeping with the earthenware of the bowl, and while the high pattern of tank had been made of earthenware early in the '90's, it was found that they would "sweat," or leak, as some would have it, and this was advanced as an objection to a low down earthenware tank, and is still advanced to some extent.

However, the vitreous earthenware tank, made for use as a means of flushing the accepted type of bowl, will rarely show any trace of moisture, and then only under conditions which would show the same effect with any tank, that of accumulating on a cold surface the moisture constantly present to a greater or less extent, and more apparent when a bath room is filled with hot vapor during or immediately after use; and then only when the closet is flushed repeatedly, allowing a more than normally cold supply of water to fill the tank.

This chance is so slight that the many other advantages of a vitreous porcelain tank far overbalance them, and as these facts are fast becoming known, there seems to be no doubt that in a very short time the seat and cover will be the only wood work to meet the eye in the modern bath room. The conditions which Thomas Maddock, no doubt, realized must result will have found fruition, and the life work of the pioneer will have been continued to a successful conclusion by the firm which succeeded him, whose part in the evolution of sanitary ware as well as that of the water closet has been greater than that of any one other firm.

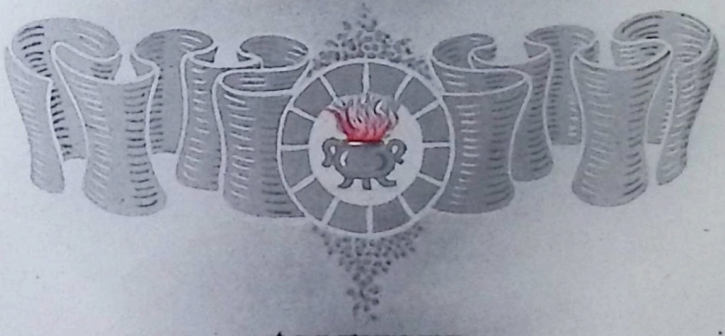
Hispano-Moresque Dish
Sixteenth Century
Victoria and Albert Museum

A MODERN BATH ROOM

A MODERN BATH ROOM

MARKS OF

FOREIGN POTTERS



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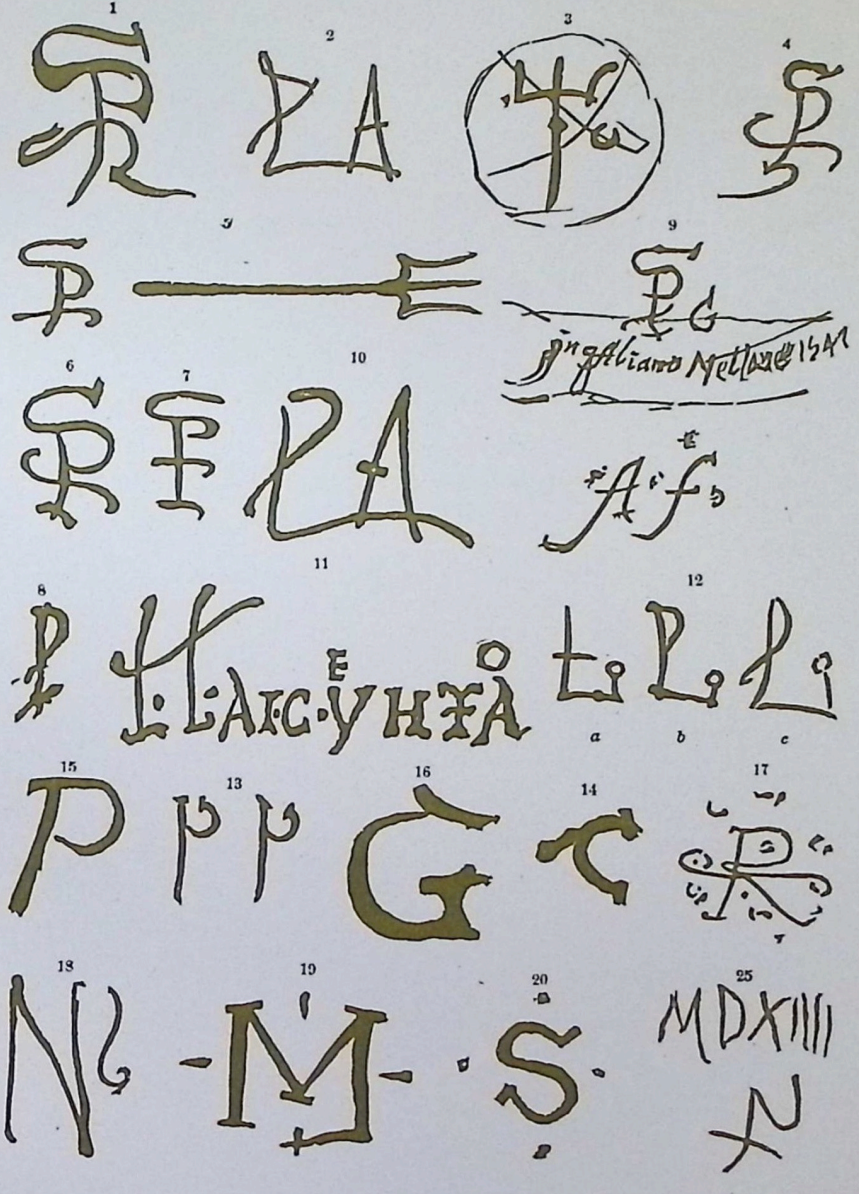


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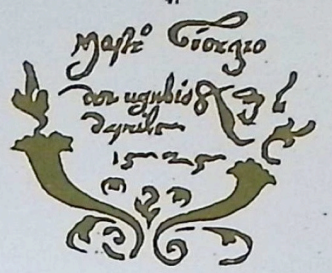

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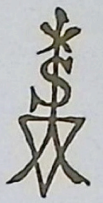

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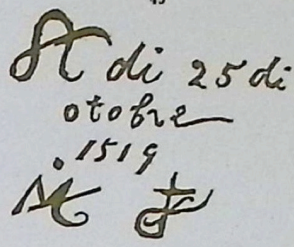

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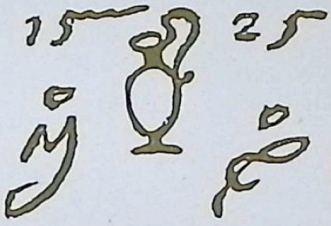

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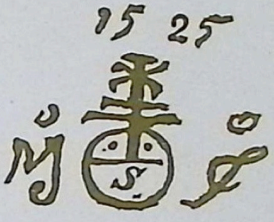

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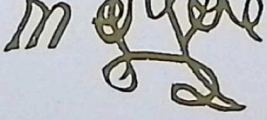

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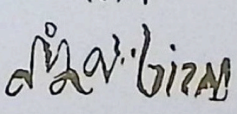

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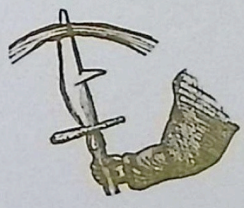

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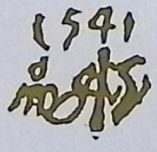

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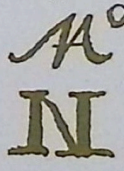

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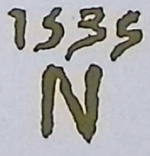

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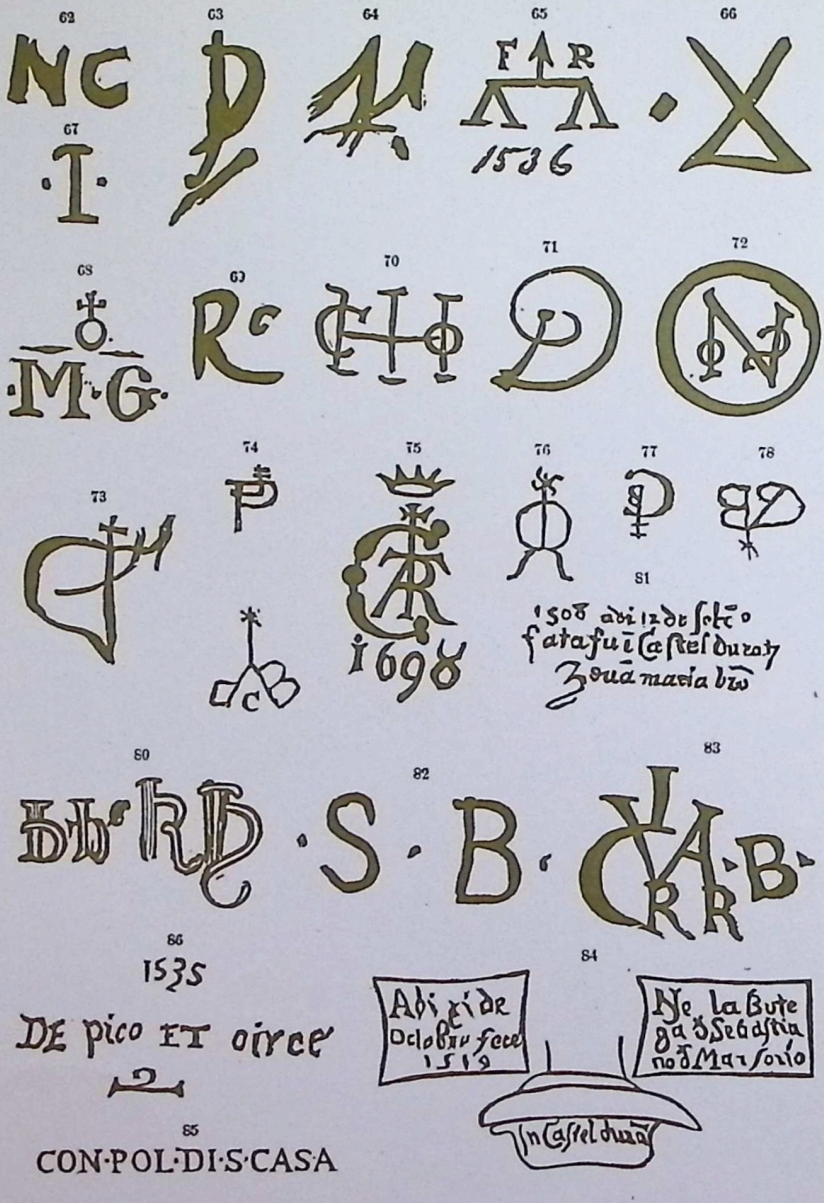
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MARKS ON POTTERY OF ITALY—Continued

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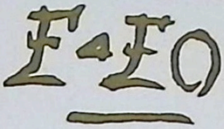

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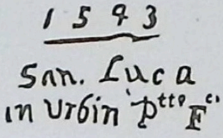

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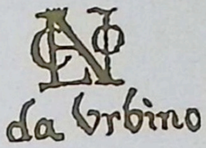

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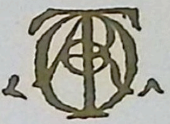

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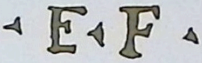

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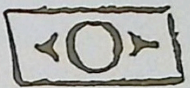

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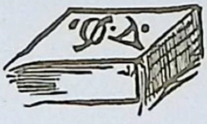

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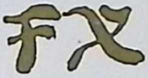

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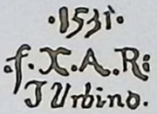

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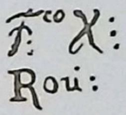

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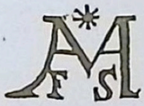

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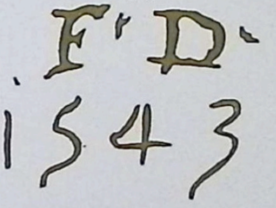

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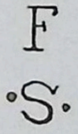

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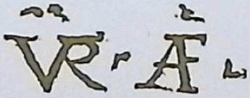

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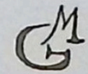

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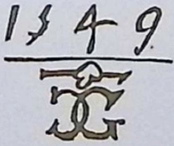

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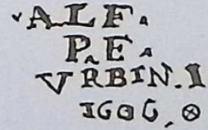

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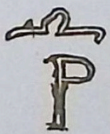

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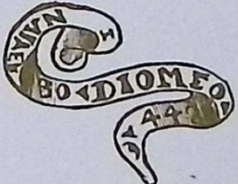

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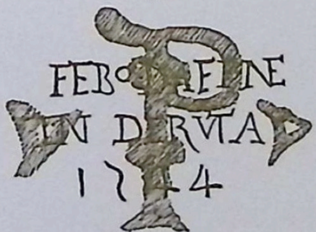

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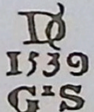

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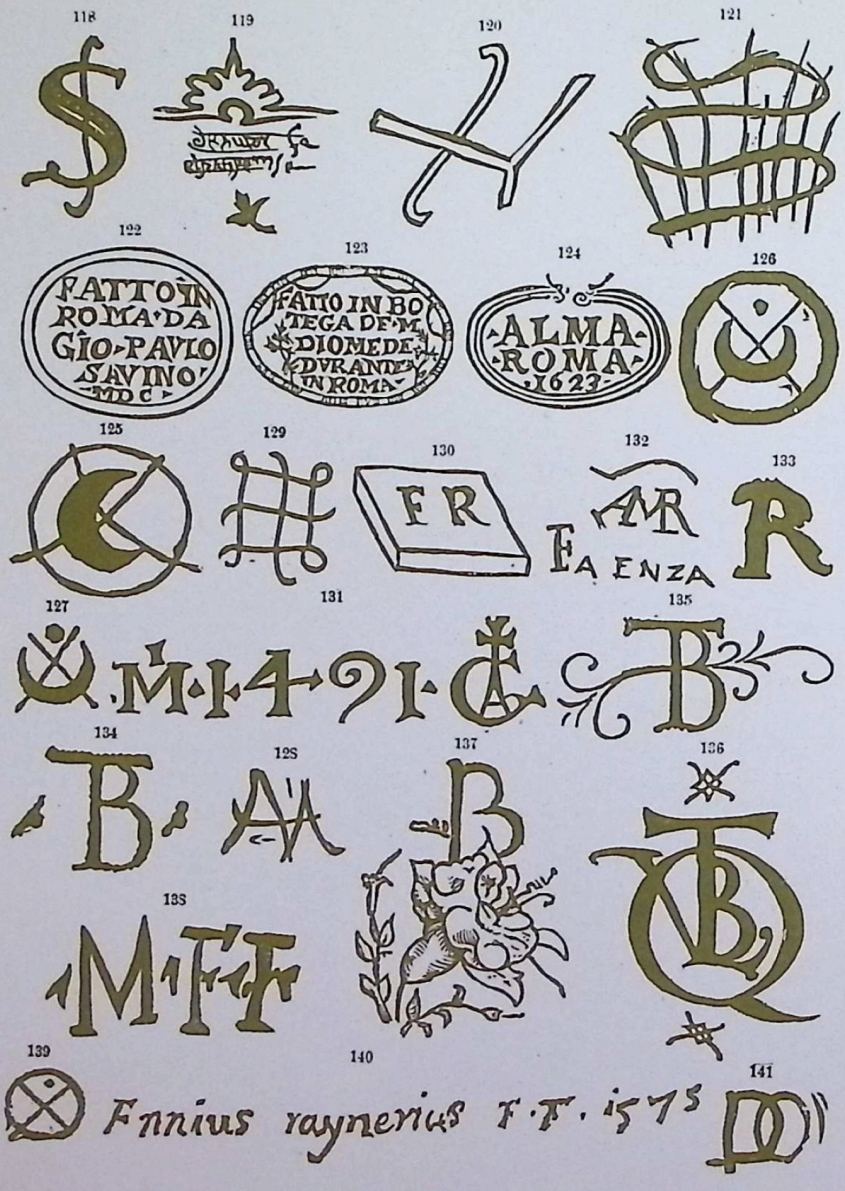
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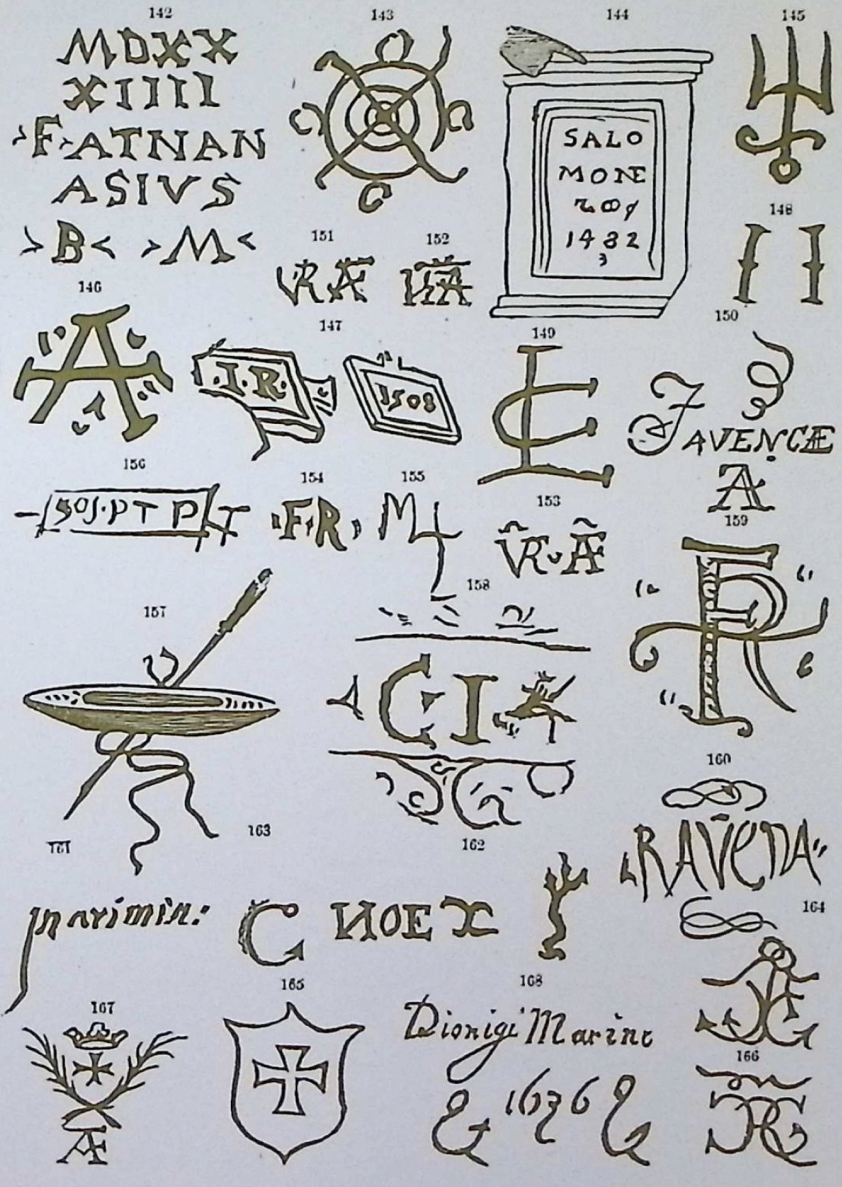
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1–25. CAFFAGIUOLO. The most frequent form of mark is that seen in Nos. 1, 4, 5, 6, 7, in which a P has a dash across the upright, while the curved line at top is continued upward to make an S, thus forming a monogram which includes S. P. F. (Senatus Populus Florentinus?) or S. P. R. (Senatus Populus Romanus?). Both these inscriptions are of frequent occurrence in Caffagiuolo decorations. The form of this mark varies greatly, sometimes being little more than a P, the lower part crossed by a waving line. It is found in one instance on Damascus ware.

3. Doubtful. Mr. Fortnum says Faenza.

5. On a plate also marked *In Chaffaggiuolo.*

6. On a plate also marked *Cafagioli,* and on a dish marked *In Caffagiuollo.*

9. The usual mark, with C or G, and under it *In galiano nell ano* 1547; under this the artist's initials, A F *f* (*ecit*). Galiano is a village near Caffagiuolo, where the artist, perhaps, worked.

11. An undeciphered mark on an early plate with the Virgin and Child. This is not certainly of Caffagiuolo, but possibly of Faenza.

12. Three marks, uncertain. One on a plate in the collection of Baron Gustave de Rothschild is dated 1507.

21–30. Caffagiuolo. Marks 24, 28, 29, 30 are doubtful. 26 occurs in very large size on a dish attributed by Delange to Faenza, by Mr. Fortnum to Caffagiuolo.

31, 32, 33. SIENA. 31 is on a plate painted in blue "*a porcelan,*" and is a mark of *Maestro Benedetto,* chief potter artist there. 32 has been mistaken for a mark of Pesaro. 32 and 33 are also assigned to Benedetto, but Mr. Fortnum thinks them initials of owners of the objects. See page 130, mark 200.

34. PISA.

35. Unknown. On a box with emblems of Cosmo de' Medici.

36, 37, 38. MONTE LUPO. 38 is on a dish dated 1663, and has been assigned by some to Monte Feltro.

39–47. GUBBIO. These are various forms of the signature of *Maestro Giorgio Andreoli;* 43 is, perhaps, most frequent. These facsimiles do not give size. The marks are frequently very large. The upper initials in 39 are, perhaps, those of the owner.

47–61. Gubbio.

47. Mark of *Maestro Giorgio* in very large size on dish with bathing scene, called "Diana and her Nymphs surprised, etc."

48. A similar form of mark was used in the sixteenth and seventeenth centuries on goods, etc., by merchants; also found on merchants' seals. More commonly the top forms a figure 4. Perhaps it is a trade mark of a merchant. A similar form occurring in mark 52 is thought by Jacquemart to indicate ecclesiastical dignitaries, or pharmacies attached to monasteries. The mark 48 occurs on several pieces.

49, 50. Maestro Giorgio.

51. G. A., for Giorgio Andreoli.

52. Maestro Giorgio, with mercantile or religious sign. See mark 48.

53, 54. Maestro Giorgio: some read *Maestro Gillio.*

55. Gubbio, supposed later than Giorgio.

56. On a dish by Giorgio, dated 1518.

59–61. Marks assigned to *Maestro Vincenzio,* or *Cencio.*

62. Gubbio.

63. Gubbio. Mark of the master *Prestino,* whose signature also occurs in full.

64. Gubbio. Probably Maestro Vincenzio.

65. Gubbio.

66. Gubbio or Diruta. Uncertain.

67. Gubbio.

68. Gubbio. Jacquemart thinks the letters mean *Mater Gloriosa,* not Maestro Giorgio.

69. Gubbio. Probably Prestino.

70, 71, 72, 73. Marks found on Gubbio wares.

74–85. CASTEL-DURANTE.

74, 76, 77, 78, 79. Trade marks, perhaps of dealers, found on Castel-Durante wares. See No. 48.

75. Mr. Fortnum thinks this probably the mark of the owner of the piece.

81. Signature of *Giovanni Maria, vasaro,* and date 12 Sept., 1508.

83. Doubtful. Castel-Durante or Fabriano. Mark of painter or owner.

85. On cups, etc., made of dust of the Santa Casa at Loretto.

86. URBINO. Mark on inferior work. Mr. Fortnum thinks of a young artist.

87–111. Urbino.

87. Attributed to *Flaminio Fontana.*

88. Unknown artist, on a plate with St. Luke.

89, 97. *Nicola da Urbino.*

90. *Orazio Fontana.*
91. Attributed by Passeri to Orazio Fontana, but 93 is on work much later.
92. Unknown artist.
94. On work of Orazio Fontana.
95. Orazio Fontana.
96. Orazio Fontana. The Greek *Phi* may be a monogram of O *f* and the *Delta* mean Durantino.

98, 99, 100, 106. Signatures of Francesco Xanto.

101. On one of the pieces of the Gonzaga-Este service, by Nicola da Urbino.
102. On a dish painted with St. Jerome.
103. *Francesco Durantino.*

104, 105, 109, 112. Found on Urbino work.

107. Initials of *Gian. Maria Mariani,* dated 1542.
108. Attributed to *Luca Cambiasi.*
110. *Alfonso Patanazzi.*
111. CITTA DI CASTELLO. On a plateau sgraffiato.
113. VITERBO. Date 1544.

114, 115, 116, 117. DIRUTA.

118, 119, 120. Diruta.

121. FABRIANO.

122, 123, 124. ROME.

125–141. FAENZA. 125 and 126 are typical marks of the Casa Pirota. 127 is a frequent mark. 131 is the date 1491 between the letters M and G, which may imply *Mater Gloriosa.* 134, 135, 136 and 144 are all of the same workshop.

142–156. Faenza.

142. On a plate with allegorical subject. B. M. for *Baldasaro Manara.*
143. Casa Pirota. A frequent mark in similar form.
144. On a plate representing Solomon. Lazari reads the mark as G. I. O., but Mr. Fortnum thinks it T. M. in antique letters.
145. Doubtful. Faenza or Caffagiuolo.
155. Said to be on a piece with the name of Giovano of Palermo, and the words *in Faenza.* Doubted by Jacquemart.
157. FORLI. On a plaque date 1523.
158, 159. Forli. Signatures on Forli wares are known also of *Mo iero da Forli,* and *Leuchadius Solobrinus* 1564.
160. RAVENNA.
161. *In arimin. Rimini.*
162. RIMINI.

MARKS ON POTTERY OF ITALY—Concluded

163–168. VENICE.

165. On a plate from the botega of *Mo Ludovico.* Other Venice pieces are marked *In Botega di Mo. Jacomo da Pesaro*; and *Jo Stefano Barcello Veneziano pinx.*

CANDIANA, 1620, is a mark on a plate. There is no such place as Candiana. The word may be Venetian.

169. VENICE.

170. On a plate seemingly Venetian.

171. CORNARO.

172. TREVISO.

173, 174, 175. BASSANO. The *Terchi* family. The mark 173, which is the iron crown, is also on other fabrics.

176. VERONA. Illegible mark, the enamel being broken. It occurs on a plate under the words 1563 *adi* 15 *zenaro. Gio Giovanni Batista da faenza in Verona.*

177, 178. PADUA.

179. GENOA. A lighthouse, hanging out a signal.

180. Attributed to Genoa by M. Demmin.

181. SAVONA. The shield mark is drawn in various shapes, often with a few dashes of the brush, and is accompanied by a variety of letters.

182. Savona.

183. Savona. *Gio. Anton. Guidobono.*

184. Savona.

185. Savona. Solomon's knot.

186. TURIN. Escutcheon of Charles Emanuel, 1638.

187. Turin. Escutcheon of Victor Amadeus, 1713.

188. Turin. Cross of Savoy and trumpet.

189. MAURIENNE.

190. MILAN.

191, 192. Milan. *Felice Clerice?*

193. Milan. *Pasquale Rubati.*

194. Milan.

195, 196. LODI.

197. TREVISO.

198, 199. NOVE.

200. SIENA. Initials of Campani?

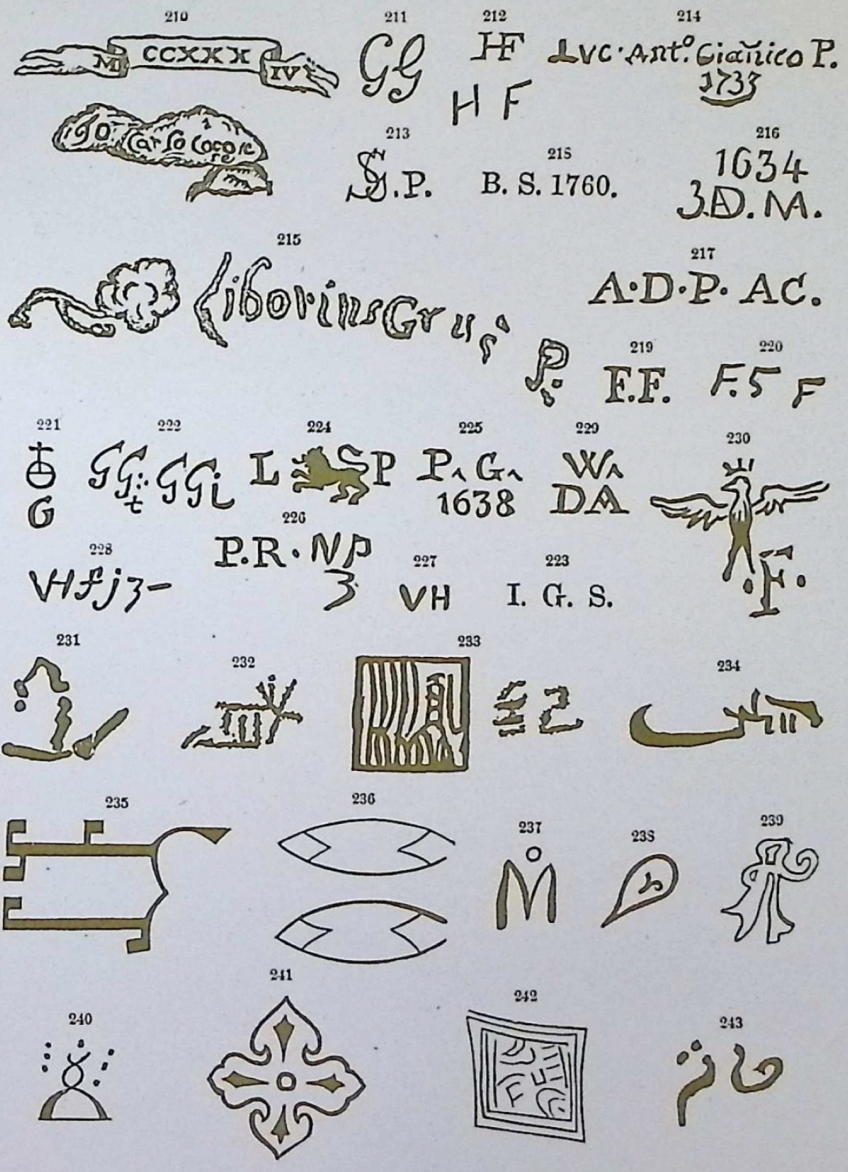
201. PESARO. *Casali and Caligari,* 1763.

202. SAN QUIRICO. Arms of Chigi. Dated 1723.

203. NAPLES. Vases; one inscribed *Paulus Francus Brandi Pinx.*

204, 205, 206, 207. On same class of Naples vases.

208, 209. Naples. *Del Vecchio* fabric, impressed marks.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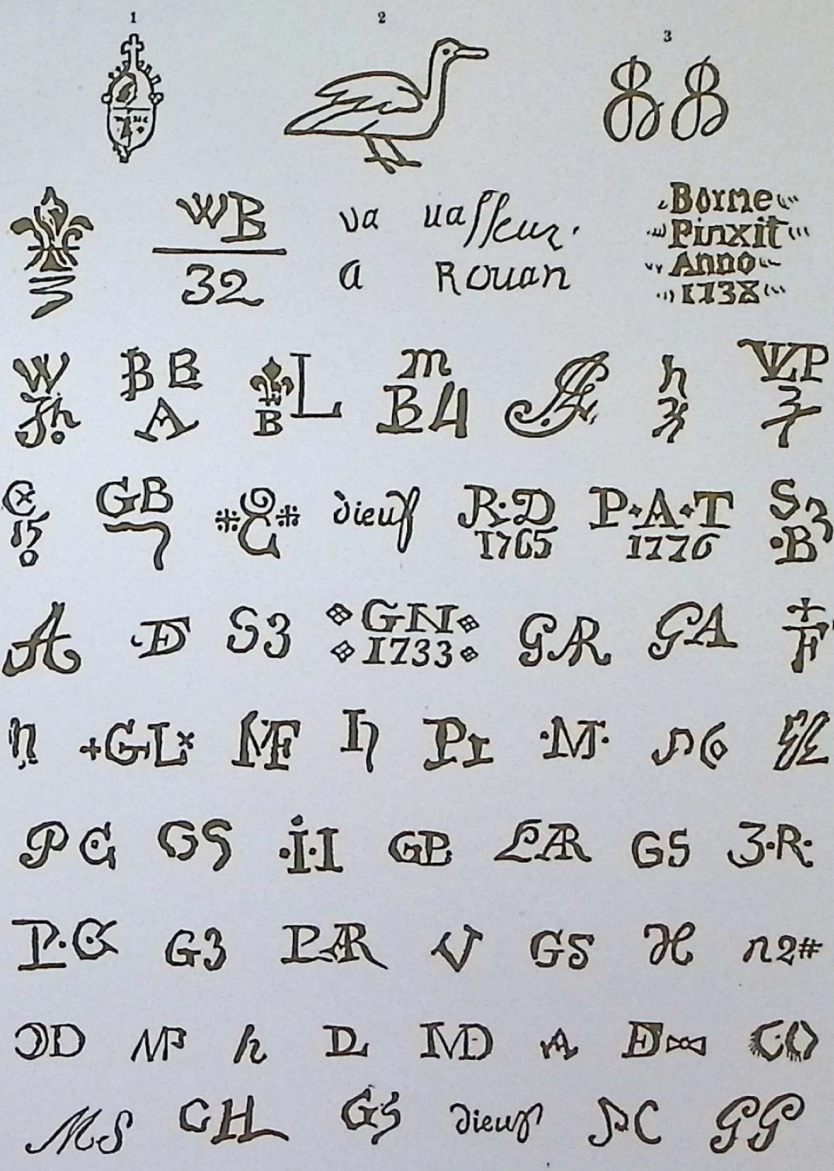
MARKS ON WARES OF ITALY, PERSIA, RHODES, ETC.—Concluded

210. Naples. Attributed to Capo-di-Monte.
211. Naples. *Giustiniani,* impressed. Other marks of this fabric are the name in full; the letter G, the name with I. N. and a vase.
212. Attributed to Naples and to Castelli. We have it on wares found in Germany. Mr. Fortnum thinks it German.
213, 214, 215. CASTELLI; 213, *Saverio Grue;* 215, *Liborius Grue.*
216–230. Unknown marks on Italian pottery.

MARKS ON SARACEN POTTERY AND PORCELAIN

231. PERSIA. Painted in blue on a hard paste porcelain bowl. (T.-P. Coll.)
232. Unknown. On hard paste porcelain bowl. (T.-P. Coll.) Engraved through the glaze.
233. Unknown. The square mark painted in blue, the characters engraved through the glaze, on a hard paste porcelain bowl. (T.-P. Coll.)
234. Persia. In blue on hard paste porcelain bowl. (Coll. of G. Trumbull, Esq.)
235. Persia. In blue on hard paste porcelain vase. (Hoe Coll.)
236. Persia. In red on vase, apparently soft paste porcelain. (Hoe Coll.)
237. MANISES, in Spain. On copper lustered ware. (Chaffers.)
238. On a Hispano-Moresque plate, fifteenth century. (Chaffers.)
239. On a Hispano-Moresque dish, gold lustered. (Chaffers.)
240. On a Persian or Damascus ware jug.
241. RHODES. Given by Marryat as found on Rhodian wares, supposed to represent the cross of the Knights.
242. Given by Mr. Fortnum as on a flask of "artificial porcelain paste, perhaps engobe," with design eminently Persian, but showing Chinese influence, brought from Persia.
243. Persia. Name of a maker, *Hatim,* on Persian pottery.

A mark closely resembling the common mark of Caffagiuolo (mark 1 of Italian pottery) occurs on a Damascus ware bottle in Mr. Franks's collection. Modern Persian fabrics have the names of makers with dates.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Anno
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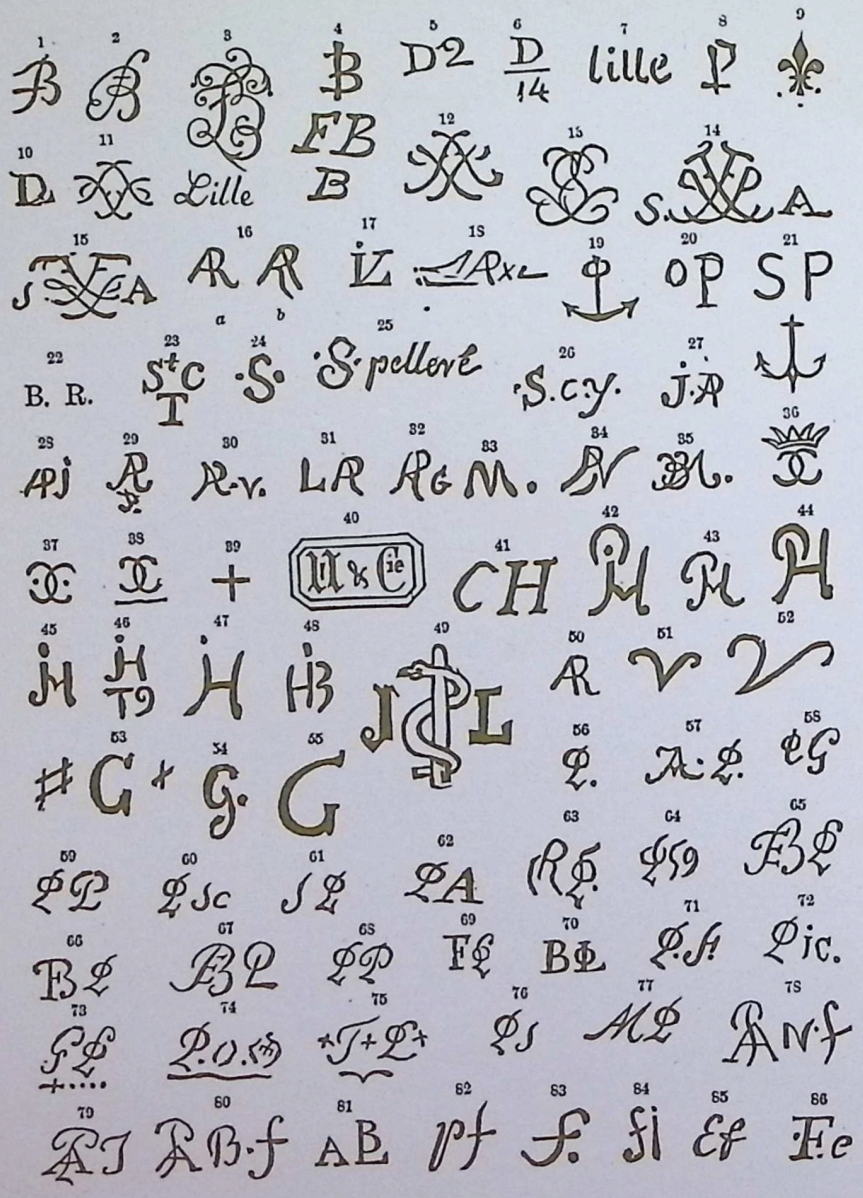
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"Fait par GDE, Ano 1761."

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175 176 177 178

179 180 181 182 183

1. On a green enameled plate are escutcheons of arms of French provinces, and the one here given, which contains part of the arms of Beauvais and the name *Masse,* perhaps of the artist. An inscription ends with *Fait en Decembre* 1502, or as M. Jacquemart reads, 1511.
2. POITOU. The Goose of Thouars, found on a vase; supposed reference to Oiron.
3. AVON. Mark on the Nurse and other figures, which were formerly attributed to Palissy.

ROUEN. All the other marks, which are not numbered, are found on pottery of ROUEN. Many of these are similar to marks on Delft. The only artists' signatures known are the two, easily read, of *Dieul,* who decorated *faience a la corne.*

Other marks painted, sometimes rudely, on Rouen ware are as follows (these are not in facsimile):

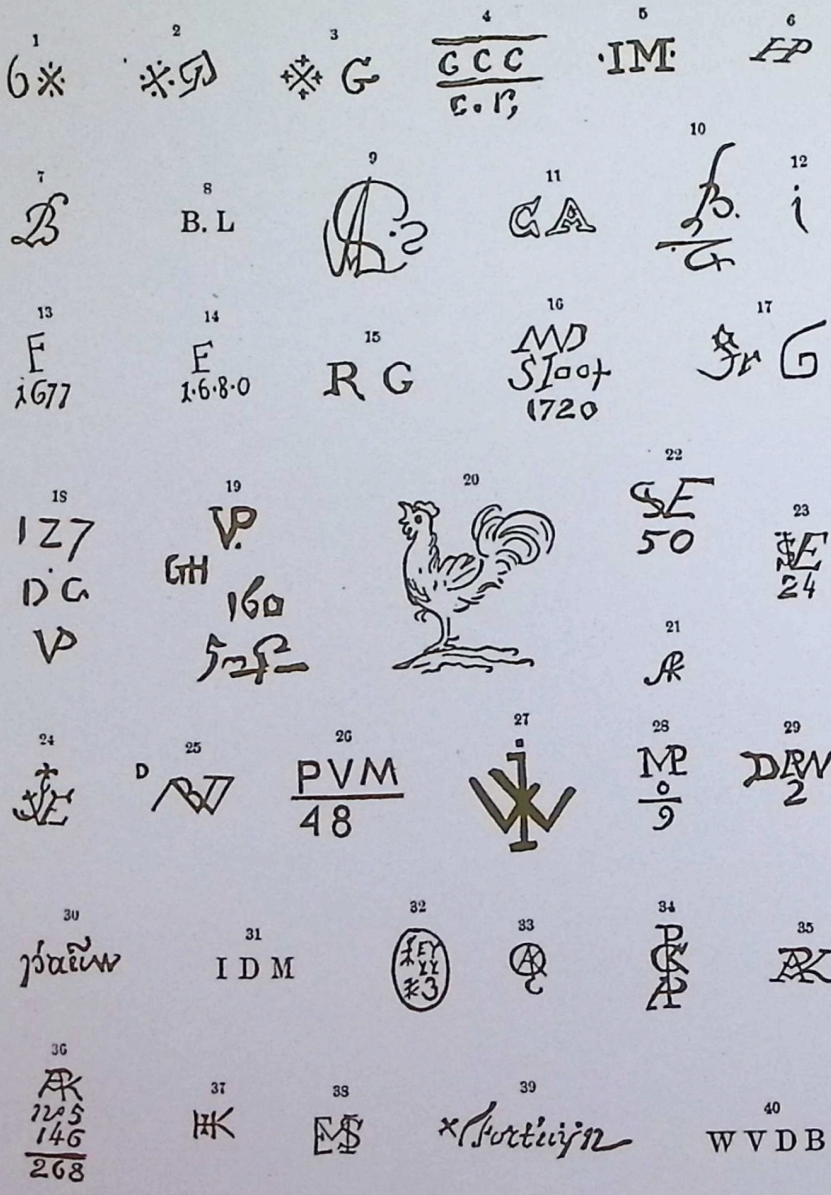
Ro	Go	G_3	D V	Gm.	M
R D	G L	P P	Mo	H C	M v
P. D	G Md	R	D L	H M	W Gt
G.	G W	S.	Gi	H T	Mrs. Guillibeaux.

1, 2, 3. LILLE. François Boussemart.
4. Lille. Febvrier and Boussemart?
5, 6. Lille. Barthelemi Dorez, 1709–'15. His grandson signed *N. A. Dorez,* in 1748.
7, 8, 9. Lille; 7, about 1788; (?) 8, Petit?
10. VALENCIENNES. *Louis Dorez.*
11, 12, 13, 14, 15. ST. AMAND LES EAUX. *P. J. Fauquez.*
16. PARIS. *Claude Reverend's* mark.
17, 18. Paris. On ware resembling Reverend's.
19. SCEAUX. Mark of Glot, who also marked with the word SCEAUX. Prior to 1772 the mark had been S X.
20. Sceaux? or Bourg la Reine? Doubtful.

21. Sceaux. Glot's period.
22. BOURG LA REINE.
23. ST. CLOUD. *Trou's* mark.
24, 25, 26. SINCENY. 25 is signature of *Pellevé*, director.
27, 28, 29, 30, 31, 32. APREY. The factory monogram Ap, with initials of Jarry and other artists.
33. MATHAUT.
34, 35. NIDERVILLER. Beyerlé period. The mark is B N in monogram.
36, 37, 38, 39. Niderviller. Custine period. These marks must not be confounded with Kronenburg, or Ludwigsburg.
40. SARREGUEMINES. *Utzchneider & Co.*
41. STRASBOURG. *Charles Hannong.*
42, 43, 44. Strasbourg. *Paul Antoine Hannong.*
45, 46, 47. Strasbourg. *Joseph Adam Hannong.*
48. Strasbourg or Hagenau. Possibly *Balthasar Hannong.*
49. PREMIERES, in Burgundy. *J. Lavalle.* Other marks are J L P in a script monogram.
50. MEILLONAS. *Madame de Marron.*
51, 52. VARAGES.
53, 54, 55. TAVERNE. *Gaze,* director.
56–86. MOUSTIERS. The marks including a monogram of O L are attributed to Joseph Olery. Some are his, but Jacquemart doubts many. 86 is supposed signature of Fouque, successor to Clarissy. Names, perhaps, of Spanish artists—*Soliva, Miguel Vilax, Fo Gianzel, Cros*—occur. A potter, *Ferrat,* about 1760 signs his name. *Pierre Fournier* signs work dated 1775; *Antoine Guichard,* in 1763; *Thion,* in the last century. *Moustiers* appears as a mark written and also applied through pricked points. *Viry,* painter, signs a plate.
87–95. Moustiers. 87 and 88 are marks of *Feraud,* potter. 95 is probably Olery. The other marks are uncertain.
96–98. MARSEILLES. The fleur-de-lis is attributed to *Savy* after 1777.
99–102. Marseilles. *J. G. Robert.*
103, 104. Marseilles. *Veuve Perrin.*
105. Marseilles. *A. Bonnefoy.*
106. Marseilles. *J. Fauchier.*
107. MARANS. *J. P. Roussencq.*
108, 109. Marans.

MARKS ON POTTERY OF FRANCE—Concluded

110. RÉNAC. (Jacquemart.)
111. ORLEANS.
112–123. NEVERS. 112 is the earliest known signature; 113, Denis Lefebvre; 114, Jacques Bourdu; 115, 116, Henri Borne on statuettes; 117, Jacques Seigne; 119, Dominique Conrade, third of the name, 1650–'72; 120, Etienne Born; 121, François Rodriguez; 122, Nicholas Viodé; (?) 123, from the Conrade arms.
124. LIMOGES. Massié.
125. LA TOUR D'AIGUES.
126. *Avisseau*, modern potter at Tours (died 1861).
127–146. Unknown marks on French pottery.
147–183. Unknown marks found on French pottery. On a basin is the mark ALEX 1724. On a bas-relief is the name *J. Alliot.*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54 DEX "

55 Z:DEX. 18 1/2

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59 VDC

60 E. B. S

61 CVS

62 GVS

63 RJ

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65

66 HB

67 HVMD 5

68 THART

69 thart

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71 HB 2

72 Duijn

73 Duijn

74 Duijn

75 De Blompot

76 D

77 D. S. K

78 EP KAN

79 EPK

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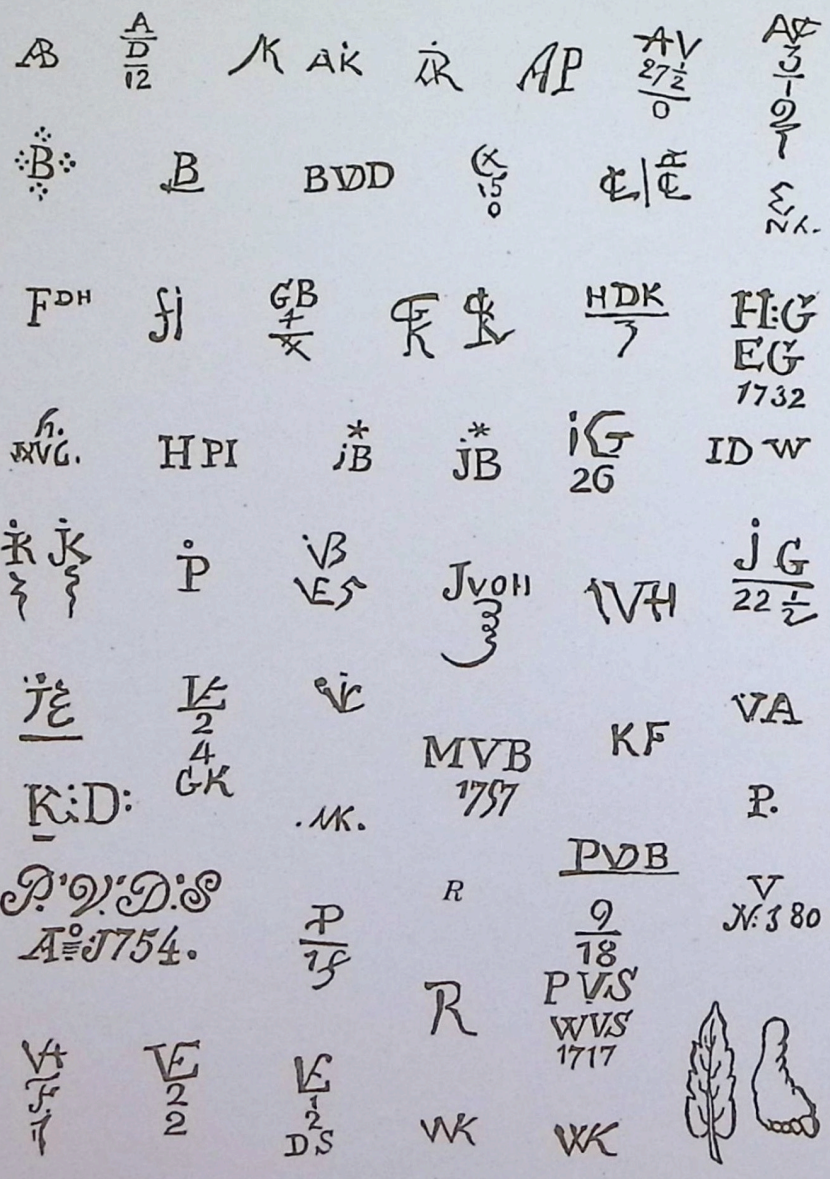
81 W. V. B.

UNKNOWN MARKS ON POTTERY OF HOLLAND



MARKS ON POTTERY OF BELGIUM

1–3. TOURNAY. Marks, probably, of Peterynck.
4. TERVUEREN.
5. MALINES. Attributed by Jacquemart.
6. BRUGES. *Henri Pulinx.*
7. LUXEMBOURG. Mark of the brothers *Boch* before the French Revolution.
8. Luxembourg. Subsequent mark, impressed.
9; 10. Luxembourg.
11–19. Unknown marks on Flemish pottery.

MARKS ON POTTERY OF HOLLAND

20. AMSTERDAM, 1780–'83. *Hartog v. Laun.*
21–40. DELFT.
21. *Samuel Piet Roerder.*
22, 23, 24. *Suter van der Even,* 1580.
28. Factory with sign of *De Metaale Pot,* 1639.
29, 30. *De Paauw* (The Peacock), 1651.
31. *Jacobus de Milde,* 1764.
32. *Martinus Gouda.*
33. *Q. Kleynoven,* 1680.
34. *Cornelius Keyser, Jacobus Pynaker* and *Adrian Pynaker,* 1680.
37. *Jan Jansz Kuylick,* 1680.
38. *Johannes Mesch,* 1680.
39. *T' Fortuyn* (The Fortune), 1691.
40. Widow of Pieter van der Briel.
41–81. Marks deposited in the Hotel de Ville, Delft, in 1764, by potters, designating their shop names. These are not always given in facsimile.
41–45. DE WITTE STER (The White Star). *A. Kielle.*
46. IN DER VERGULDE BOOT (The Gilded Boat). *Johannes der Appel.*
47–49. DE ROOS (The Rose). *Dirk van der Does.*
50. DE KLAAUW (The Claw). *Lambertus Sanderus.*
51, 52. DE DRIE KLOKKEN (The Three Bells). *W. van der Does.*
53–56. DE GRIEKSE A (The Greek A). *J. T. Dextra.* 1765, the works passed to *Jacobus Halder Adriaensz* (M. 56).
57. DE DRIE PORCELEYNE ASTONNEN (The Three Porcelain Barrels). *Hendrick van Hoorn.*

MARKS ON POTTERY OF HOLLAND—Concluded

58, 59. DE ROMEYN (The Roman). *Petrus van Marum.* The same year the manufactory passed into the hands of *Jan van der Kloot Jansz* (M. 59).

60. T'JONGUE MORIAANS HOFFT (The Young Moor's Head). Widow of *Peter Jan van der Hagen.*

61–63. IN T'OUDE MORIAANS HOFFT (The Old Moor's Head). *Geertruy Verstelle.*

64, 65. DE PORCELEIN BYL (The Porcelain Hatchet). *Justus Brouwer.* Occurs frequently.

66, 67. DE DRIE PORCELEYNE FLESCHJES (The Three Porcelain Bottles). *Hugo Brouwer.*

68–70. T'HART (The Stag). *Hendrik van Middeldÿk.*

71. DE TWEE SCHEEPJES (The Two Ships). *Anth. Pennis.*

72–74. DE PORCELEYNE SCHOOTEL (The Porcelain Dish). *Johannes van Duyn.*

75. DE VERGULDE BLOMPOT (The Gilded Flower Pot). *P. Verburg.* The mark is not facsimile.

76. DE PORCELYN FLES (The Porcelain Bottle). *Pieter van Doorne.*

77. DE DUBBELDE SCHENKKAN (The Double Pitcher). *Thomas Spaandonck.*

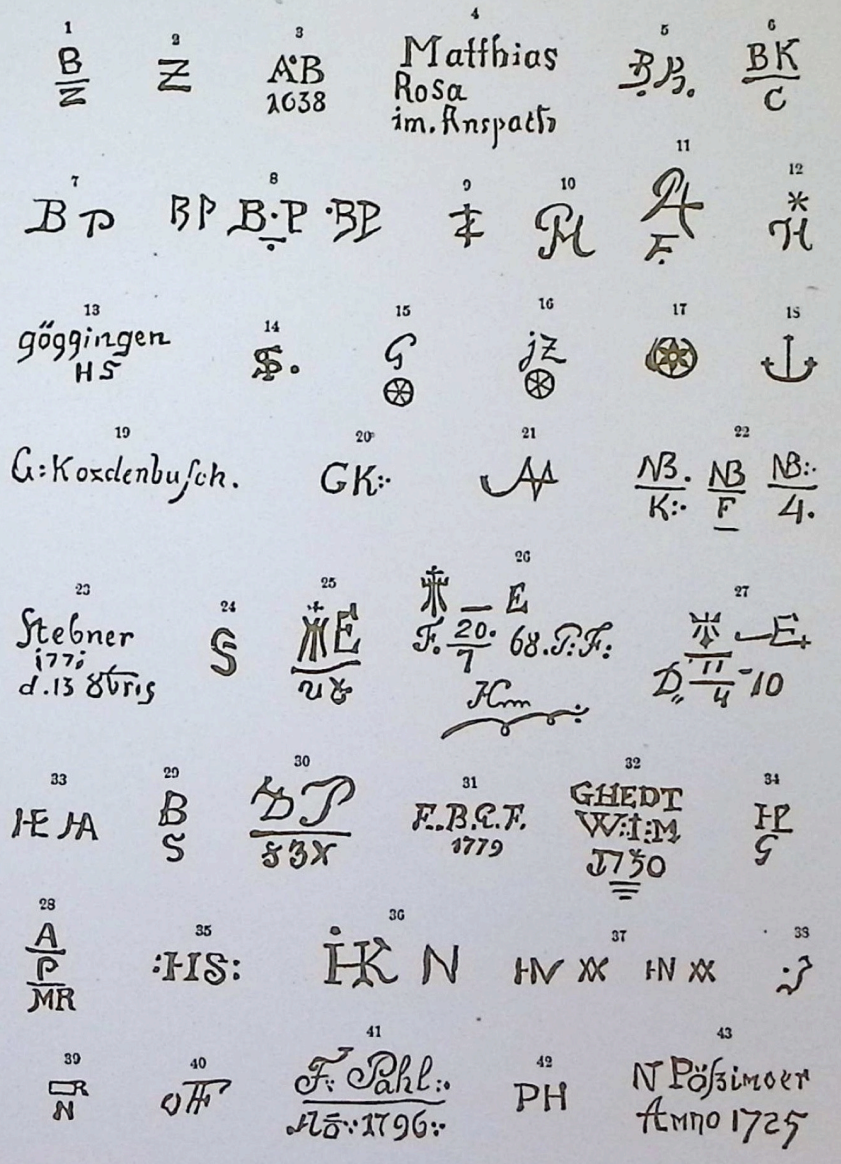
78–80. DE LAMPETKAN (The Ewer). Widow of *Gerardus Brouwer.*

81. DE TWE WILDEMANS (The Two Savages). Widow of *Willem van Beek.*

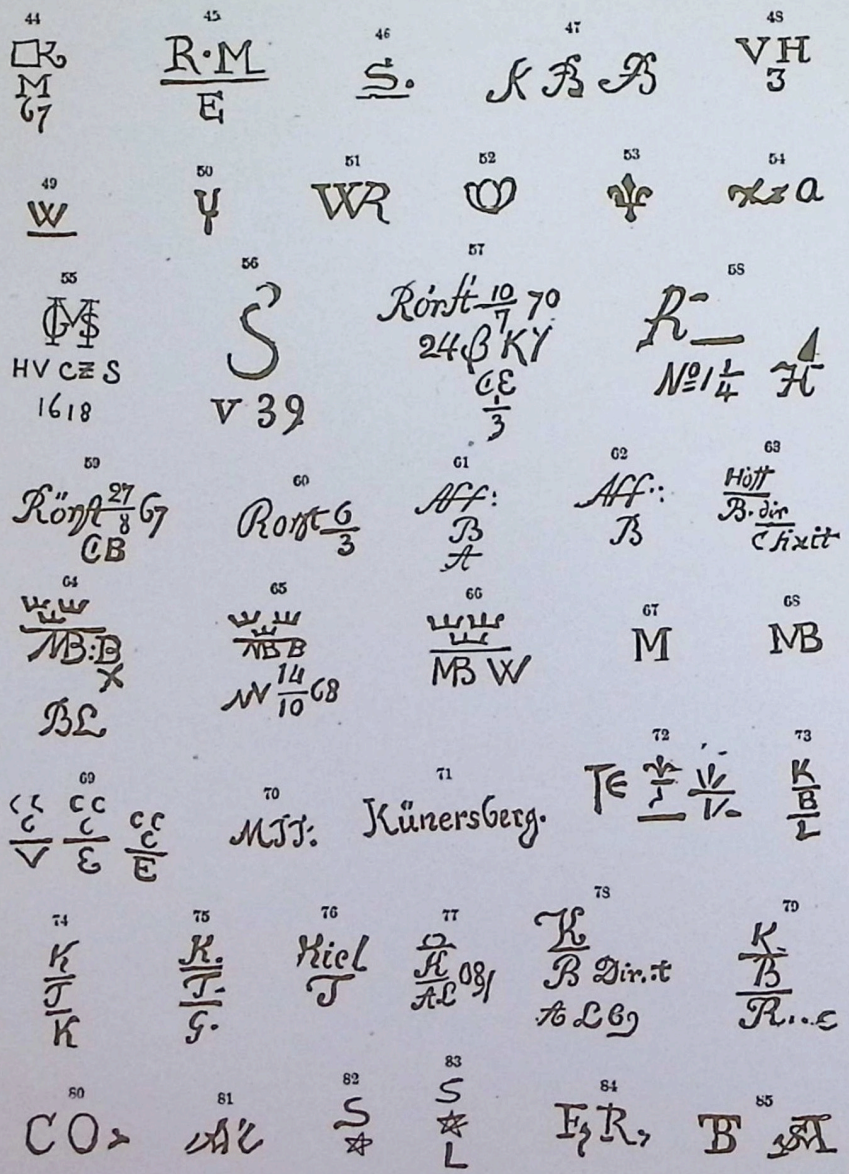
UNKNOWN MARKS ON POTTERY OF HOLLAND

All the marks on page 142 are found on pottery apparently of Delft; but their signification is unknown. It is important to note that similar marks are found on wares of Rouen, and other factories. The collector will exercise judgment as to paste and style of decoration before assigning specimens, and will frequently find it impossible to decide where a piece was made.

MARKS ON POTTERY OF SWITZERLAND AND GERMANY



MARKS ON POTTERY OF GERMANY, SWEDEN, DENMARK, SPAIN AND PORTUGAL—Continued



MARKS ON POTTERY OF SWITZERLAND

1, 2. ZURICH.
3. WINTERTHUR. On an ecritoire. *Jacquemart.*

MARKS ON POTTERY OF GERMANY

4. Anspach (Bavaria).
5, 6, 7, 8, 9. BAIREUTH. Sometimes the name in full.
10, 11, 12. FRANKENTHAL. 10 and 11 are marks of Paul A. Hannong; 12, of Joseph A. Hannong. It is not possible to distinguish the first mark from Hannong's when at Strasbourg.
13. GOGGINGEN, near Augsburg, established about 1750.
14. Harburg. Initials of Johann Schaper.
15, 16, 17. HÖCHST. 15 has the G for *Geltz;* 16 the Z for *Zeschinger;* 17 is the wheel alone, the arms of Mayence. See p. 172, mark 54.
18. POPPELSDORF. Wessel's manufactory; impressed. Also found impressed with the name *Mettlach* on pottery of that place.
19, 20, 21, 22, 23. NUREMBERG. M. Demmin gives a monogram of H C D, and date 1550, as on a stove. *Glüer*, probably an artist, signs a dish with *Nurnberg* 1723. Plates are signed *G. F. Greber Anno* 1729 *Nuremberg. Stroebel* signs a bell, with date 1724, and a dish painted, with date 1730. A stove of green tiles, with religious subjects, has the signature of *Hans Kraut*, and date 1578. Hans Kraut was the great potter of Willingen.
24. SCHREITZHEIM.
25, 26, 27. STRALSUND.
28 to 43. Unknown marks on German pottery.
44–56. Unknown marks on German pottery.

MARKS ON POTTERY OF SWEDEN, ETC.

57–62. RORSTRAND. 61 and 62 are probably signatures of *Arfinger*, according to Mrs. Palisser. Chaffers gives a mark, *Storkhulm* 22, 8. 1751 *D H B,* as of the factory after Rorstrand was united to Stockholm. The marks include the date, price and signatures of artists. *Stockholm* is found, and also *Rorstrand,* impressed.
63. Rorstrand, or Marieberg, or Kiel?
64–69. MARIEBERG.
70. Swedish?
71. KÜNERSBERG.

MARKS ON POTTERY OF SWEDEN, ETC.—Concluded

72. Künersberg
GUSTAFSBERG, 1820 to 1860. The mark is the name with an anchor.
HELSINBURG. Given by Mr. Chaffers as on stone wares, made from 1770.
73–79. KIEL.

MARKS ON POTTERY OF SPAIN AND PORTUGAL

80, 81. ALCORA.
82, 83. Attributed to SEVILLE.
84, 85. LISBON.
RUSSIA and POLAND. For marks on pottery of Russia and Poland, see p. 175.

MARKS ON FOREIGN PORCELAIN

ANCIENT & MODERN

MARKS ON PORCELAIN OF ITALY, SPAIN AND PORTUGAL

MARKS ON PORCELAIN OF ITALY, SPAIN AND PORTUGAL—Concluded

1. FLORENCE. On Medicean porcelain. The arms of the Medici, and initials of Franciscus Medici Magnus Etruriæ Dux Secundus.
2. Florence. On Medicean porcelain. Dome of the Cathedral.
3. Tablet held by a lion, in the decoration of a bowl.
4, 5, 6, 7. DOCCIA, near Florence.
8, 9, 10, 11. LE NOVF. 10 and 11 are signatures of *Gio. B. Antonibon.*
12, 13. VENICE. *Vezzi;* impressed, or in red.
14, 15, 16. Venice. *Cozzi;* in red, blue or gold. This mark must be distinguished from that of Chelsea in England.
17. Venice.
18–26. NAPLES; CAPO-DI-MONTE factory. 18 is supposed to be the earliest mark, in blue. The fleur-de-lis was also used at the Buen Retiro factory in Madrid, as given below. 21, 22, 23, 24 are marks of Ferdinand IV. in and after 1759. The crowned N is often reversed in the mark. The marks are sometimes in color, sometimes impressed.

GIUSTINIANI of Naples made hard paste porcelain, using the same marks as on pottery; see p. 132.

27–31. MADRID. Marks of the Buen Retiro factory. This factory was an outgrowth of Capo-di-Monte in Naples, and used the fleur-de-lis mark also. 27 and 28 are the cipher of Charles III. 29 is M, for Madrid.
32. VISTA ALLEGRE, near Oporto, Portugal.
33, 34, 35. TURIN, Italy; Vineuf factory of Dr. Gionetti, impressed or scratched. The cross is also sometimes accompanied by scratched lines, forming VN in monogram.


1
2
3
4
5
6
7
8
9
R. Fx
or
R. F.
10
DD
11
Sèvres
12
M.Nle
Sèvres.
13
M. Imple
de Sevres.
14
Manufacture Impériale
SEVRES
15
16
17
18
19
Sevres
27
20
21
DE LA MANUFACTURE DE SEVRES
20
22
Sèvres
30
23
SEVRES
34
24
25
45
26
52
27
28
54
29
DORE A SEVRES
73
30
DORE A SEVRES
73
31
S.72.
32
S 81
33
C.K
DREUX
34
35
36
37
Br. exch.
V.D.

MARKS ON PORCELAIN OF SÈVRES—Continued

1. VINCENNES. The interlaced double L, the initial of the king's name, was adopted by the Vincennes factory shortly after its foundation, and used till 1753. The mark, unaccompanied by other letters, is rarely, if ever, found on porcelain made at Sèvres. After the removal of the factory to Sèvres, this mark, accompanied with date letters, as hereafter explained, continued the typical mark of the factory down to the Revolution.

2. Vincennes. The mark was usually in this form, with a dot in the monogram. Marks 1 and 2 should be found only on pieces made prior to 1753.

3. Vincennes and Sèvres. In 1753, at Vincennes, the system of dating by letters of the alphabet was adopted, A being 1753, B 1754, etc. See *Table of Marks used to indicate Dates,* p. 163. The factory was removed to Sèvres in 1756. A, B, C, D, therefore, date wares of Vincennes. D also dates work at Sèvres. The date letter is placed either within or outside of the monogram, and is sometimes a capital and sometimes a small letter.

4. The crown was adopted over the monogram as the mark of hard paste porcelain after its introduction. Forms of this mark are 5, 6 and 10, showing accompanying signatures of artists. Thus, mark 10 includes the factory mark, the device of the artist *Vieillard,* and the date DD, 1781. This mark on a service in the T.-P. collection has also the mark of another artist, *Baudoin,* on each piece.

7. The letter Z having been reached in 1777, double letters were used thereafter, AA being 1778, etc. A difference of opinion exists as to whether the letter J was used for 1762, but the best authorities now agree that it was used.

8, 9. In the Republican period the royal initial was abandoned, and the mark R. F., for *République Française,* was adopted (1792–1800), always accompanied by the word *Sèvres.* The R. F. was in monogram, as in mark 8, or in one of the forms in mark 9. Dates were not used from 1792 to 1801.

11. About 1800 the word Sèvres was used alone, without the R. F. It was usually in a form similar to mark 11, but varied as made by different hands. This mark was in use from 1800 till the end of 1802.

12. In the Consular period, 1803, the mark 12, for *Manufacture Nationale,* was used, stenciled in red.

13. In the Imperial period, beginning May 8, 1804, mark 13, for *Manufacture Imperiale,* was adopted, and used till 1809, stenciled in red.

14. The imperial eagle was adopted as the mark in this form in 1810, printed in red, and continued in use till the abdication, in 1814. Date marks were used from 1801, for which see *Marks used to indicate Dates*, p. 163.

15. Mark of the period of Louis XVIII., used from May, 1814, to September, 1824, the date indicated by the last two figures of the year. This mark was printed in blue.

16, 17, 18, 19. Marks used in the reign of Charles X., from 1824 to 1828, printed in blue; the figures under the mark indicating the year of the century.

20, 21. Marks used in the reign of Charles X., in 1829 and 1830. Mark 20 was used on decorated wares; 21 was used on pieces which were gilded only.

22. This mark was used only in 1830, under Louis Philippe.

23. Used from 1831 to November, 1834, under Louis Philippe.

24. Used from November, 1834, to July, 1835.

25. The cipher of Louis Philippe, used from July, 1835, to 1848.

26. Used under the Republic from 1848 to 1852.

27. Used under the Empire of Louis Napoleon, from 1852 to 1854.

28. Cipher of Louis Napoleon, used from 1854 to 1872.

29, 30. These marks have been used in addition to the factory mark since July, 1872, usually printed in red.

31, 32. The letter S with the date of the year of the century, in an oval, was adopted in 1848 as the factory mark on all pieces, and continues in use. On white wares, sold without decoration, it is cut across by a scratch through the glaze. It is printed in pale green. Mr. Chaffers says it has been used on white wares since 1833. Many modern pieces with this mark cut across are decorated by amateurs and others.

33. Marks of this kind, containing names of chateaux or palaces, were placed on pieces, table services, etc., made for use in the royal residences thus indicated.

34. Monogram of Catharine II. of Russia, in flowers, laurels, etc., on a service made for her.

MARKS ON PORCELAIN OF SÈVRES—Concluded

35, 36. *Visa* of Alexander Brongniart, the director, occurring on several fine pieces in the T.-P. collection. It does not appear as an intentional mark, but as if the artist's work had been submitted to the director, and he had written on the back with a lead pencil *Vu Alex B* or *Vu B.* In the firing this has become a yellowish mark with some metallic iridescence.

37. Marks stenciled in red on a plate dated 1811, decorated with a view of the Palace of St. Cloud, signed *Label.* The visa of Brongniart in form of mark 36 is also on the plate. (T.-P. Coll.)

Many hard paste specimens of Sèvres which originally bore the marks of the Imperial period prior to 1814 are found with the letters M Imple, or the eagle, ground off on a wheel, leaving only the words DE SÈVRES or SÈVRES. The wheel has, of course, removed the glaze.

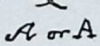
MARKS USED BY PAINTERS, DECORATORS AND GILDERS AT SÈVRES

FIRST PERIOD. 1753–1799


Aloncle—birds, animals, emblems, etc.


Anteaume—landscape, animals.


Armand—birds, flowers, etc.


Asselin—portraits, miniatures, etc.


Aubert (senior)—flowers.


Bailly (son)—flowers.


Bardet—flowers.


Barre—detached bouquets.


Barrat—garlands, bouquets.


Baudoin—ornaments, friezes, etc.


Becquet—flowers, etc.


Bertrand—detached bouquets.


Bienfait—gilding.


Binet—detached bouquets.


Binet, Madame (née *Sophie Chanou*)—flowers.


Boucher—flowers, garlands, etc.


Bouchet—landscape, figures, ornaments.


Bouillat—flowers, landscapes.


Boulanger—detached bouquets.


Boulanger (son)—pastoral subjects, children.


Bulidon—detached bouquets.


Bunel, Madame (née *Manon Buteux*)—flowers.


Bunel, Madame—another form.


Buteux (senior)—flowers, emblems, etc.


Buteux (elder son)—detached bouquets, etc.


Buteux (younger son)—pastoral subjects, children.


Capel—friezes.


Cardin—detached bouquets.


Carrier—flowers.


Castel—landscapes, hunts, birds.


Caton—pastoral subjects, children, birds.


Catrice—flowers, detached bouquets.


Chabry—miniatures, pastoral subjects.


Chanou, Madame (née *Julie Durosey*)—flowers.


Chapuis (elder)—flowers, birds, etc.


Chapuis (younger)—detached bouquets.


Chauvaux (father)—gilding.


Chauvaux (son)—detached bouquets, gilding.

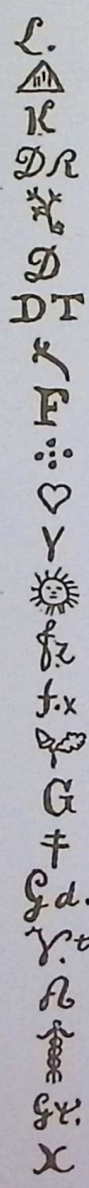

Chevalier—flowers, bouquets, etc.


Choisy, De—flowers, arabesques.


Chulot—emblems, flowers, arabesques.


Commelin—detached bouquets, garlands.


Cornaille—flowers, detached bouquets.



Couturier—gilding.

Dieu—Chinese, Chinese flowers, gilding, etc.

Dodin—figure, various subjects, portraits.

Drand—Chinese, gilding.

Dubois—flowers, garlands, etc.

Dusolle—detached bouquets, etc.

Dutanda—detached bouquets, garlands.

Evans—birds, butterflies, landscapes.

Falot—arabesques, birds, butterflies.

Fontaine—emblems, miniatures, etc.

Fontelliau—gilding, etc.

Fouré—flowers, bouquets, etc.

Fritsch—figures, children.

Fumez—detached bouquets.

Fumez—another form.

Gauthier—landscape and animals.

Genest—figure and genre.

Genin—flowers, garlands, friezes, etc.

Gerard—pastoral subjects, miniatures.

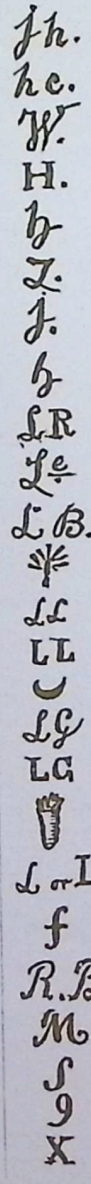
Gerard, Madame (née *Vautrin*)—flowers.

Girard—arabesques, Chinese, etc.

Gomery—flowers and birds.

Gremont—garlands, bouquets.

Grison—gilding.



Henrion—garlands, detached bouquets.

Héricourt—detached bouquets, garlands.

Hilken—figures, pastoral subjects, etc.

Houry—flowers, etc.

Huny—detached bouquets, flowers.

Joyau—detached bouquets, etc.

Jubin—gilding.

La Roche—flowers, garlands, emblems.

La Roche—another form.

Le Bel (elder)—figures and flowers.

Le Bel (younger)—garlands, bouquets, etc.

Léandre—pastoral subjects, miniatures.

Lecot—Chinese, etc.

Lecot—another form.

Ledoux—landscape and birds.

Le Guay—gilding.

Le Guay—another form.

Leguay—miniatures, children, Chinese.

Levé (father)—flowers, birds, arabesques.

Levé, Felix—flowers, Chinese.

Maqueret, Madame (née *Bouillat*)—flowers.

Massy—groups of flowers, garlands.

Merault (elder)—friezes.

Merault (younger)—garlands, bouquets.

Micaud—flowers, bouquets, medallions.

MARKS OF SÈVRES ARTISTS—Continued


Michel—detached bouquets.


Moiron—detached bouquets; also another form used by *Michel*.


Mongenot—flowers, detached bouquets.


Morin—marine, military subjects.


Mutel—landscape.


Niquet—detached bouquets, etc.


Noel—flowers, ornaments.


Nouailhier, Madame (née *Sophie Durosy*)—flowers.


Parpette—flowers, detached bouquets.


Parpette, Dlle. Louison—flowers.


Pajou—figure.


Petit—flowers.


Pfeiffer—detached bouquets.


Pierre (elder)—flowers, bouquets.


Pierre (younger)—bouquets, garlands.


Philippine (elder)—pastoral subjects, children, etc.


Pithou (elder)—portraits, historical subjects.


Pithou (younger)—figures, flowers, ornaments.


Pouillot—detached bouquets.


Prevost—gilding.


Raux—detached bouquets.


Rochet—figure, miniatures, etc.


Rosset—landscapes, etc.


Roussel—detached bouquets.

Schradre—birds, landscape, etc.


Sinsson—flowers, groups, garlands, etc.


Sioux (elder)—detached bouquets, garlands.


Sioux (younger)—flowers, garlands.


Tabary—birds, etc.


Taillandier—detached bouquets, garlands.


Tandart—groups of flowers, garlands.


Tardi—detached bouquets, etc.


Theodore—gilding.


Thevenet (father)—flowers, medallions, groups, etc.


Thevenet (son)—ornaments, friezes, etc.


Vandé—gilding, flowers.


Vavasseur—arabesques.


Vieillard—emblems, ornaments, etc.

Vincent—gilding.

Xrowet—arabesques, flowers, etc.

Yvernel—landscape, birds.

SECOND PERIOD. 1800–1874

André, Jules—landscape.

Apoil—figures, subjects, etc.

Apoil, Madame—figure.

Archelais—ornament worker (pâtes sur pâtes).

Avisse—ornament worker.

Barbin—ornaments.


Barré—flowers.


Barriat—figure.


Beranger—figure.


Blanchard—decorator.


Blanchard, Alex.—ornament worker.


Boitel—gilding.


Bonnuit—decorator.


Boullemier, Antoine—gilding.


Boullemier (elder)—gilding.


Boullemier (son)—gilding.


Buteux—flowers.


Cabau—flowers.


Capronnier—gilding.


Célos—ornament worker (pâtes sur pâtes).


Charpentier—decorator.


Charrin, Dlle. Fanny—subjects, figures, portraits.


Constant—gilding.


Constantin—figure.


Dammouse—figure, ornament (pâtes sur pâtes).


David—decorator.


Delafosse—figure.


Davignon—landscape.


Desperais—ornaments.


Derichsweiller—decorator.


Develly—landscape and genre.


Deutsch—ornaments.


Didier—ornaments, etc.


Didier—another form.


Drouet—flowers.


Ducluzeau, Madame—figure, subjects, portraits, etc.


Durosey—gilding.


Farraguet, Madame—figure, subjects, etc.


Ficquenet—flowers and ornaments (pâtes sur pâtes).


Fontaine—flowers.


Fragonard—figure, genre, etc.


Ganeau (son)—gilding.


Gély—ornament worker (pâtes sur pâtes).


Georget—figure, portraits, etc.


Gobert—figure on enamel and on pastes.


Godin—gilding.


Goupil—figure.


Guillemain—decorator.


Hallion, Eugène—landscape.


Hallion, François—decorator in gilding.


Huard—ornaments, divers styles.


Humbert—figure.

Julienne—ornaments, style Renaissance, etc.

Lambert—flowers.

Langlacé—landscape.

Latache—gilding.

Le Bel—landscape.

Legay—ornament worker (pâtes sur pâtes).

Le Gay—figures, various subjects, portraits.

Legrand—gilding.

Leroy, Eugène—gilding.

MARKS OF SÈVRES ARTISTS—Continued


Martinet—flowers.


Maussion, Mdlle. de—figure


Merigot—ornaments, etc.


Meyer, Alfred—figure, etc.


Micaud—gilding.


Milet, Optat—decorator on faience and pastes.


Moreau—gilding.


Moriot—figure, etc.


Parpette, Dlle.—flowers.


Philippine—flowers and ornaments.


Pline—decorative gilding.


Poupart—landscape.


Regnier, Ferd.—figure, various subjects.


Regnier, Hyacinthe—figure.


Rejoux—decorator.

Renard, Émile—decorator.


Richard, Émile—flowers.


Richard, Eugène—flowers.


Richard, François—decorator.


Richard, Joseph—decorator.


Richard, Paul—decorative gilding.


Riocreux, Isidore—landscape.


Riocreux, Désiré-Denis—flowers.


Robert, Pierre—landscape.


Robert Madame—flowers and landscape.


Robert, Jean-François—landscape.


Roussel—figure, etc.


Schilt, Louis-Pierre—flowers.


Sinsson (father)—flowers.


Solon—figures and ornaments (pâtes sur pâtes).

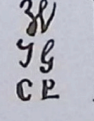

Swebach—landscape and genre.


Trager—flowers, birds.


Troyon—ornaments.


Walter—flowers.

UNDETERMINED SIGNATURES, ETC.

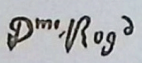


Three marks on plate dated 1821, view of Moka, signed L. M., richly gilded. The first mark also on several plates dated 1812, lapis-lazuli borders, heavy gilding, antique cameo paintings.

MARKS OF SÈVRES ARTISTS—Concluded

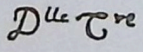
On richly decorated and gilded plates, 1821.

On plate, time of Louis XVIII., richly gilded; monochrome portrait of Racine: (probable mark of Philippine.)



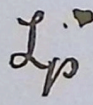
On plate not dated, rich gilding, monochrome portrait of Bourdaloue.

On fine plates and vases, 1812.



On plate *temp* Louis XVIII., rich gilding, monochrome portrait of Bourdon (? Dlle. de Treverret).

Twice this size on plate, 1822, view of Sèvres factory; possibly a *visa* of Riocreux.



In black on foot of ice vase, with river deities in superb gilding, dated 1831.

ARTISTS' SIGNATURES FOUND AT FULL LENGTH

Baldisseroni—figure.
Brunel—figure.
Bulot—flowers.
Cool, Madame de—figure.
Courcy, De—figure.
Froment—figure.
Gallois, Madame (née *Durand*)—figure.
Garneray—landscape.
De Gault—figure.
Goddé—decorator, enamels and relief.
Hamon—figure.
Jaccober—flowers and fruits.
Jacquotot, Madame Victoire—figure, subjects, portraits.
Jadelot, Madame—figure.
Lamarre—landscape.
Langlois, Polycles—landscape.
Laurent, Madame Pauline—figure, subjects, etc.
Lessore—figure, etc.
Meyer-Heine—figure and ornaments on enamel.
Parant—figure, etc.
Philip—decorator on enamel.
Schilt, Abel—figure, subjects, portraits.
Solon, Dlle.—figure, subjects.
Treverret, Dlle. de—figure.
Van Os—flowers and fruits.
Van Marck—landscape.

MARKS USED AT SÈVRES TO INDICATE DATES OF MANUFACTURE

A (Vincennes)	1753
B "	1754
C "	1755
D	1756
E	1757
F	1758
G	1759
H	1760
I	1761
J (see foot note)	1762
K	1763
L	1764
M	1765
N	1766
O	1767
P	1768
Q	1769
R	1770
S	1771
T	1772
U	1773
V	1774
X	1775
Y	1776
Z	1777

AA	1778
BB	1779
CC	1780
DD	1781
EE	1782
FF	1783
GG	1784
HH	1785
II	1786
JJ	1787
KK	1788
LL	1789
MM	1790
NN	1791
OO	1792
PP	1793
QQ	1794
RR	1795

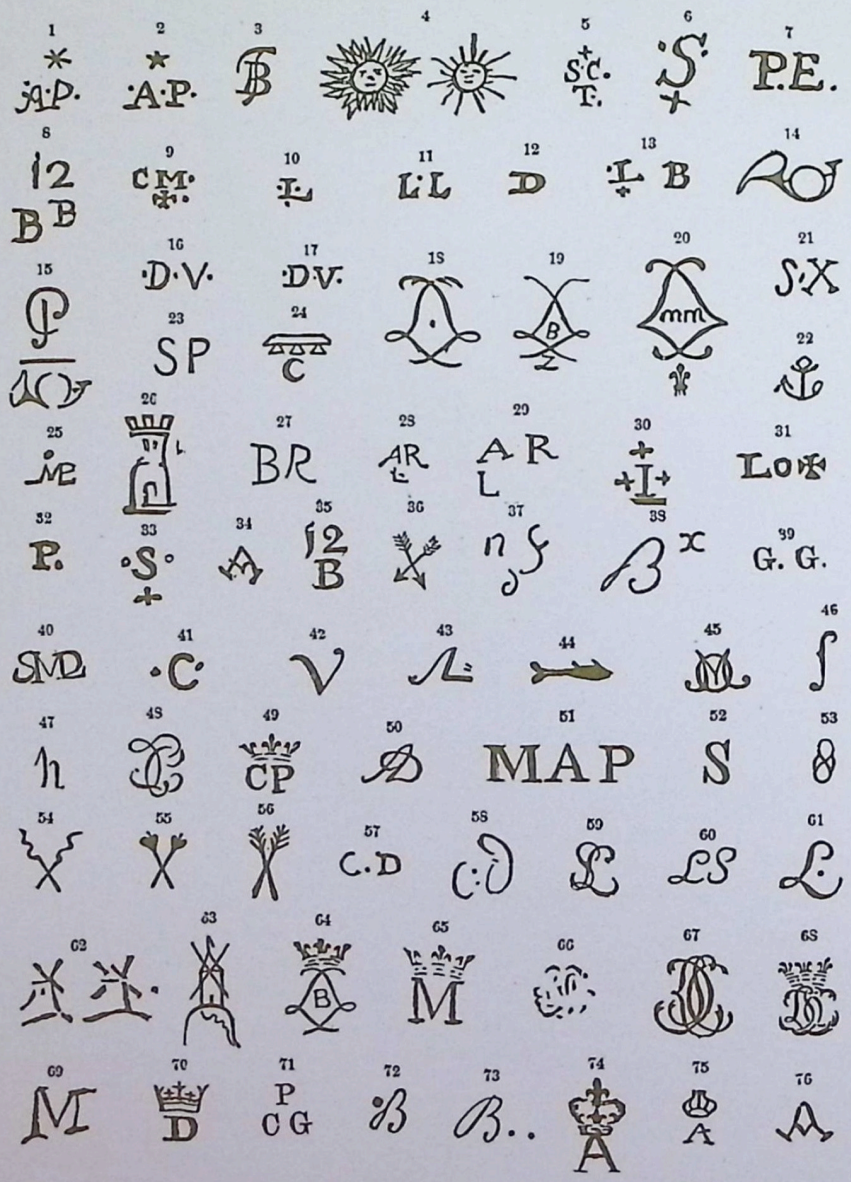
This mode of marking the date fell into disuse, and, from this period until 1800, it is found only on rare examples. In 1801, the custom of dating was resumed, and the letters replaced by the following signs:

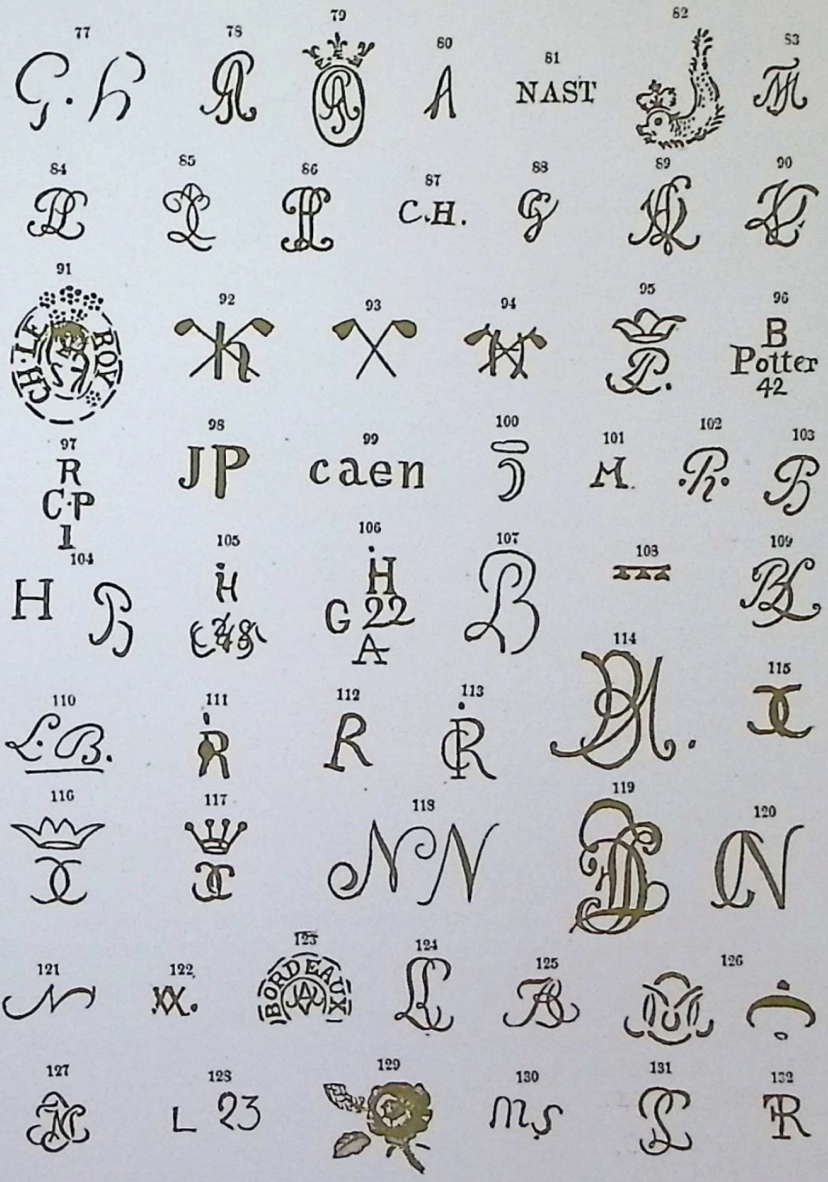
T. 9	An IX. (1801)
X	" X. (1802)
11	" XI. (1803)
—II—	" XII. (1804)
	" XIII. (1805)
	" XIV. (1806)
7	1807
8	1808
9	1809
10	1810
oz. (onze)	1811
d. z. (douze)	1812
t. z. (treize)	1813
q. z. (quatorze)	1814
q. n. (quinze)	1815
s. z. (seize)	1816
d. s. (dix-sept)	1817

From 1818 the year is expressed by the two last figures only. Thus: 18 = 1818, 19 = 1819, etc., and is so continued to the present time.

NOTE.—The *Guide* published for the Sèvres factory still adheres to the old system of dates, which rejected the letter J, and regards K as 1762, and the letters which follow representing, L, 1763, and so on. This system is abandoned by all authorities, French and English, and we do not know why it is retained in the *Guide*. In addition to the above tables, it is necessary to add that 1811, 1812, 1813 are sometimes indicated by 11, 12, 13, and possibly other years were occasionally so indicated to 1817: 1769, the year of a comet, was sometimes indicated by a comet rudely painted, instead of Q.

MARKS ON PORCELAIN OF FRANCE

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NAST
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C.H.
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CH·LE·ROY
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A
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L.B.
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XX.
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BORDEAUX
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128
L 23
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131
132
R

MARKS ON PORCELAIN OF FRANCE—Continued

1, 2. Unknown marks on early French porcelains, given by Jacquemart as possibly Louis Poterat, of Rouen, 1673–1711.
3. Unknown, on similar porcelain.
4. ST. CLOUD. Two forms. *Pierre Chicanneau*, 1702–'15.
5. St. Cloud. Trou, 1706.
6, 7, 8. Uncertain. On porcelains resembling St. Cloud.
9. PARIS. *Marie Moreau,* widow of Chicanneau's son.
10–13. LILLE. 10 is the earliest mark. In 13 L is on a saucer, and B on the cup.
14, 15. CHANTILLY. 15 is Pigorry's mark since 1803.
16, 17. MENNECY-VILLEROY. In gold, color, and, later, impressed.
18, 19, 20. VINCENNES and SEVRES. See marks of Sèvres, p. 153.
21, 22, 23. SCEAUX. 21 usually scratched. 22, later, painted in blue. 23 scratched.
24. ORLEANS.
25. ETIOLLES.
26. LA TOUR D'AIGUES.
27. BOURG-LA-REINE.
28, 29. ARRAS.
30–39. Unknown marks on early French porcelains, resembling St. Cloud, given by Jacquemart. 33, 35 are doubtless the same as 6, 8, above.
40–46. Unknown marks on hard paste porcelains. 44 attributed by Riocreux to Fontainebleau. 45 resembles the mark of a Sèvres painter.
47. Paris. Pierre A. Hannong's mark, 1773.
48, 49. Paris. Same factory. Charles Philippe.
50. Paris. Gros Caillou. Established by Lamarre, 1773.
51. Paris. Morelle à Paris. Established 1773.
52, 53. Paris. Souroux, potter. Established 1773. His successor was Ollivier.
54. Paris. De la Courtille factory.
55. Paris. De la Courtille. This mark, torches or headless arrows, is made in various forms, and sometimes resembles the Dresden crossed swords.
56. Paris. *Dubois.* This mark—two branches, alluding to the maker's name—often resembles the previous one. Also assigned to De la Courtille factory.
57, 58. LIMOGES. Factory of Massie. The earliest mark was G. R. et Cie.
59, 60. LA SEINIE. Established 1774.
61. Paris. J. J. Lassia, 1774.

62–70. CLIGNANCOURT. The windmill is the earliest mark, rare, used only in 1775. 64 is stenciled on a specimen. 65, initial of *Monsieur*, the king's brother; 66, 67, 68, initials of Prince Louis Stanislas Xavier; 69, initial of Moitte, director, used with the name *Clignancourt;* 70, initial of Deruelle, director.

71. Paris. *Manufacture du petit Carousel.* Mark used with the name of the factory variously abbreviated.

72, 73. BOISSETTE.

74, 75, 76. Paris. Lebeuf. *Porcelaine de la Reine.* Initial of Marie Antoinette.

77. Paris. *Porcelaine de la Reine.* Initials of Guy & Housel, successors to Lebeuf. These occur with *Rue Thirou à Paris.* LEVEILLE, 12 *Rue Thiroux*, is the latest mark.

78, 79, 80. Paris. *Porcelaine d'Angoulême.* Early marks of *Guerhard & Dihl.* Later marks are their names in full, and MANUFACTURE DE MONS. LE DUC D'ANGOULÊME A PARIS, without name.

81. Paris. *Nast*, manufacturer. Stenciled.

82. LILLE. The early pieces have *à Lille.*

83, 84, 85, 86. Paris. Factory established by Lamarre, 1784. 84, 85, 86 are initials of Louis Philippe Joseph, Duc d'Orleans, patron.

87, 88. Paris. H. F. Chanou. Established 1784. The marks are penciled in red.

89, 90. VALENCIENNES. Initials of Fauquez, Lamoninary and V. Early mark, *Valencien.*

91. CHOISY LE ROY. Impressed.

92, 93, 94. Vincennes. Factory of P. A. Hannong. Established 1786.

95. Vincennes. Attributed to Hannong's, or another factory under the patronage of Louis Philippe.

96, 97. Paris. Charles Potter. *Porcelaine du Prince de Galles.*

98. Paris. Belleville. Jacob Pettit. The J has sometimes a dot above it.

99. CAEN. Desmare et Cie. Established 1798.

100. Paris. *Manufacture de S. M. l'Impératrice.* Also marked with full name of factory, and *P. L. Dagoty,* proprietor.

101–106. STRASBOURG. 101, C. Hannong; 102, 103, Paul A. Hannong; 104, the same, with H in the paste; 105, J. A. Hannong, with numbers; 106, J. A. Hannong.

107. BRANCAS LAURAGAIS.

MARKS ON PORCELAIN OF FRANCE—Concluded

108, 109. ORLEANS. 108, of Gerault; 109, of Le Brun.

110. Given by Jacquemart as the mark of Jacques Louis Broilliet on experimental porcelain, at *Gros Caillou* (Paris), 1765.

111, 112, 113. MARSEILLES. Robert. 113 is doubtful.

114–121. Niderviller. 114, Beyerle's period; 115, 116, 117, 120, Custine's period. These marks must not be confused with Ludwigsburg. 119 is Lanfray's cipher. NIDERVILLE in an open outlined letter is impressed on statuettes of Franklin and other biscuit pieces.

122, 123. BORDEAUX. Marks of Verneuille.

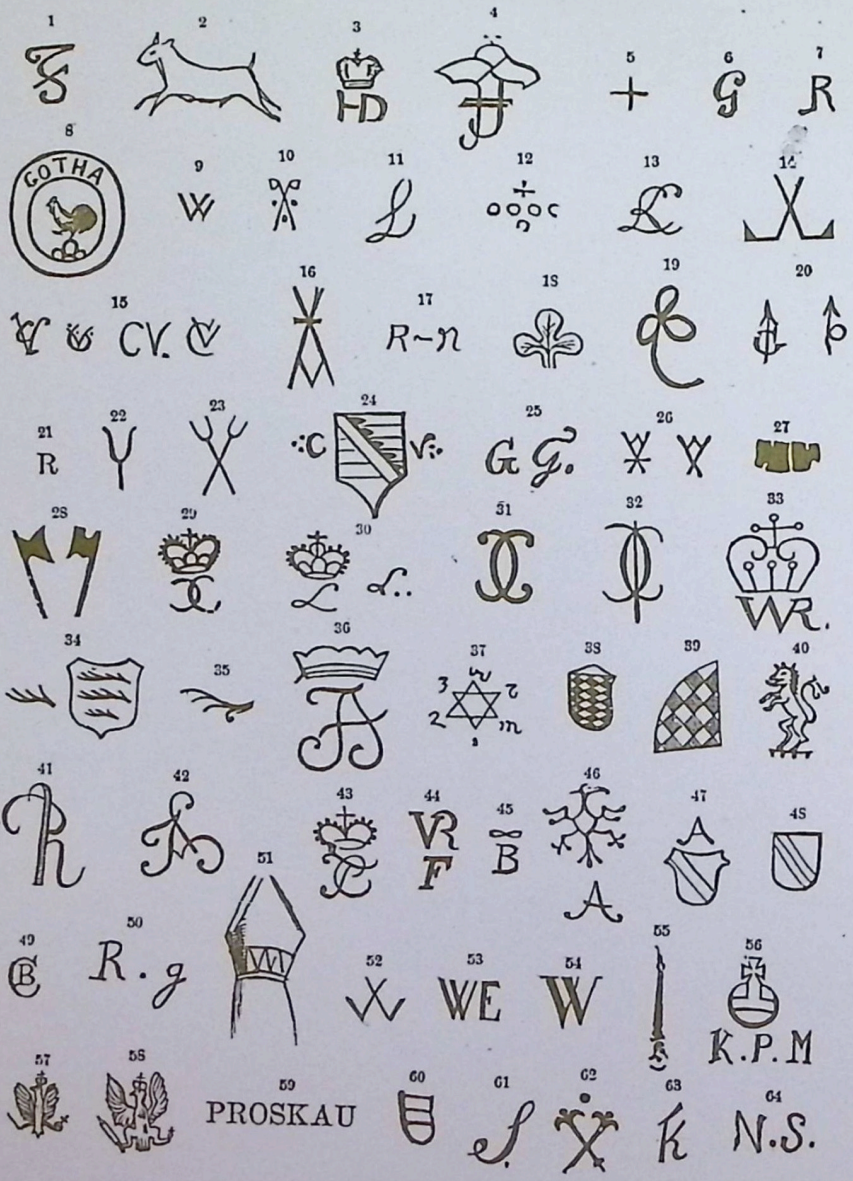
124. Unknown French. Resembles Limbach, in Germany.

125–131. Unknown marks on French porcelain.

132. Attributed by Baron Davillier to Marseilles.


ARV DE MILDE
K. P. M
M P M
SPM
B.P.T.
Dresden. 17.39
K.M.C.W.
HEREND.
NOWOTNY
F&R
A.N.
K&G
PRAG
C.F.

MARKS ON PORCELAIN OF GERMANY, ETC.
Continued



MARKS ON PORCELAIN OF GERMANY, ETC.
Continued

MARKS ON PORCELAIN OF GERMANY, ETC.
Continued

1–8. DRESDEN. Marks stamped on Böttcher red ware.
9, 10, 11. Dresden. Initials of Augustus Rex, in blue and in gold, 1709–'26.
12, 13. Dresden. Caduceus mark, on early pieces made for sale, 1717–'20.
14, 15. Dresden. King's period, from 1770; the mark with O about 1778.
16. Dresden. Crossed swords, with star. Marcolini period, from 1796.
17, 18. Dresden. Early marks for (17) *Königlicher* or (18) *Meissener Porzellan Manufactur.*
19, 20. Dresden. First forms of the crossed swords, used from 1719.
21. Dresden. Bruhl's time, 1750.
22. Dresden. Crossed swords; modern mark. The earliest form, in Horoldt's period, sometimes closely resembled the modern form.
23. Dresden. A modern mark.
24. Dresden. On a service made for the Countess Cosel.
25. Dresden. Used about 1730.
26. Dresden. Dated 1739.
27. Dresden. Early form of mark.
28, 29. Dresden. Marks used 1718.
30, 31. Dresden. Early marks.
32. Dresden. Mark used 1718.
33. Dresden. Date of use unknown; on statuettes, with or without the crossed swords. (Chaffers.)
34, 35. VIENNA, Austria.
36. ELBOGEN.
37, 38. SCHLAKENWALD, Austria. See p. 170, mark 61.
39–44. HEREND, Hungary. 39 is impressed in the paste; 40, 41, usually printed in blue; 42, painted in black, with *Herend* impressed; 43, painted in red; 44, initials of M. Fischer.
45, 46. ALTEN ROTHAU. *Nowotny*, maker.
47, 48. PIRKENHAMMER. *Fischer & Reichembach*, and *Charles Fischer.*
49. PRAGUE. *Kriegel & Co.*
50–53. HÖCHST, Mayence. See p. 147. 51 is the mark of Geltz; 52, of Zeschinger.
54. Höchst. Mark of Dahl.

MARKS ON PORCELAIN OF GERMANY, ETC.
Continued

1. FÜRSTENBERG. The F is made in various forms.
2. HESSE CASSEL?
3. HESSE DARMSTADT. (Jacquemart.)
4, 5. FULDA.
6. GERA? or GOTHA? See 25.
7, 8. Gotha.
9. WALLENDORF. (Also used at Berlin.)
10. ARNSTADT.
11, 12, 13, 14. LIMBACH.
15. VOLKSTADT. Marryat says KLOSTERVEILSDORF. See 24 below.
16. ANSPACH. So says Marryat. See 26, 46, 47, 48 below.
17. RAUENSTEIN.
18, 19. GROSBREITENBACH.
20. Grosbreitenbach?
21, 22, 23. RUDOLSTADT. R was used in various forms.
24. Volkstadt. See 15 above.
25. Gera. Two forms of G.
26. Attributed to Gera and to Anspach; probably the latter. Chaffers gives it with a D under a crown. The mark varies from a rude eagle (46) to this form. See 16.
27, 28. BADEN-BADEN. The blade of an ax or two axes, in gold or impressed.
29–35. LUDWIGSBURG (KRONENBURG). The double C is the cipher of Charles Eugene, who died 1793, but the mark was used till 1806. It must not be confounded with that of Niderviller, in Custine's time, which was sometimes accompanied by a coronet. The mark frequently appears without the crown, as in 31 and 32. The form 30 (L, with a crown) is also a mark of the time of Charles Eugene. The letters C C in mark 29 were changed in 1806 to T. R., the T. R. being sometimes in monogram; and in 1818 the letters W. R. were substituted. The stag's horns, singly, 35, or on a shield, as in 34, were also used.
36. HILDESHEIM, Hannover. Sometimes the letter A only; from about 1760.
37, 38, 39. NYMPHENBURG and NEUDECK. The first is the oldest mark. These are impressed, without color, and sometimes difficult to recognize. Found on pieces with marks of other factories, which bought and decorated them.
40–45. FRANKENTHAL. 41, P. A. Hannong's mark; 42, Joseph A. Hannong; 43, initials of Carl Theodore, Elector; 44, supposed, of Ringler; 45, supposed, of Bartolo.

MARKS ON PORCELAIN OF GERMANY, ETC.
Continued

46, 47, 48. Anspach, in Bavaria.
49. BAIREUTH.
50. REGENSBURG (RATISBON).
51. WÜRTZBURG, Bavaria.

52–57. BERLIN. The scepter is the general mark, made in several forms. 52, 53, 54 are the earliest marks of *Wegeley,* 1750–'61; 56, globe and cross and K. P. M., for *Königlicher Porzellan Manufactur,* adopted about 1830; 57, modern mark, alone, and with K. P. M. The Wegeley marks resemble Wallendorff and others.

58. CHARLOTTENBERG.
59. PROSKAU.
60. VIENNA. See p. 169 for other forms of the shield.
61. SCHLAKENWALD, Austria. See p. 169 for other forms.
62, 63, 64. Unknown marks on German hard paste porcelain.

65–76. Unknown marks on German hard paste porcelain.
77, 78. Uncertain; possibly Frankenthal, *Hannong fecit.*
79. WEESP, Holland.
80. Weesp? Arnstadt? Saxe Gotha? Uncertain.
81. LOOSDRECHT. Manufactur oude Loosdrecht.
82, 83. AMSTEL (Amsterdam).
84. AMSTERDAM. The lion frequently alone.
85. THE HAGUE.
86, 87, 88. BRUSSELS. 87 is mark of L. Cretté.
89–92. LUXEMBOURG. 93 is the modern mark.
93. ZURICH, Switzerland.
94. NYON, Switzerland.
95–98. TOURNAY. 95 is Peterynck's mark from 1751; the tower is also assigned to Vincennes, and pieces thus marked are called "Porcelaine de la tour."
99, 100, 101. MARIEBERG, Sweden.
102, 103. COPENHAGEN. Three waving lines for the Sound and the Belts.

MARKS ON POTTERY AND PORCELAIN OF RUSSIA, ETC.

104–112. ST. PETERSBURG. Royal factory; 104, time of Empress Elizabeth, 1741; 105, 106, Empress Catharine (Ekaterina), 1762; 107, Emperor Paul, 1796; 108, Emperor Alexander, 1801; 109 Emperor Nicholas, 1825; 110, 111, Emperor Alexander II, 1855; 112, shows system of dates by dots adopted 1871—one dot for 1871, two for 1872, etc.

113, 114. St. Petersburg. Brothers Korniloff.

115–119. MOSCOW. Gardners.

120–123. Moscow. Popoff. Factory established 1830.

124. KIEV, Russia, or near there at Mejigorie. Pottery.

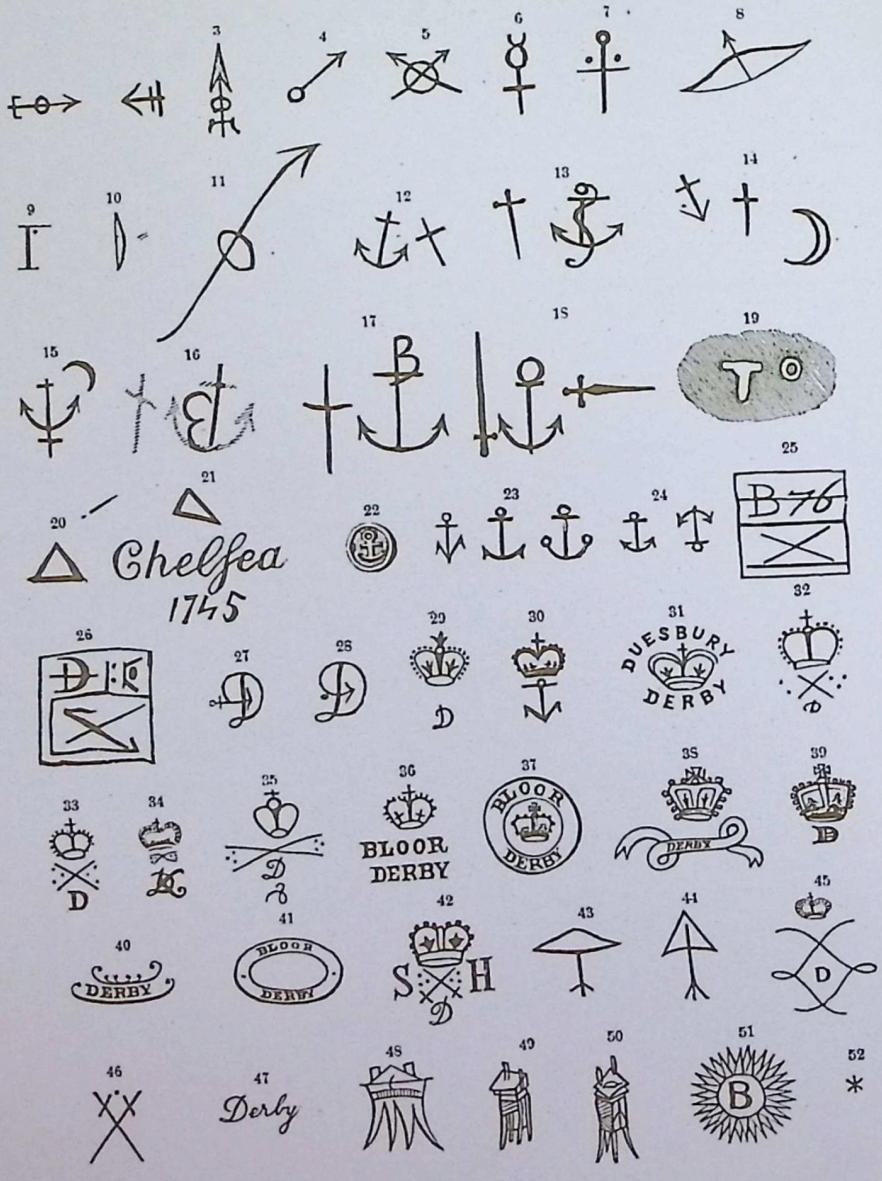
125. BARANOWKA, Poland. Pottery.

126. CHMELOFF, Poland. Pottery.

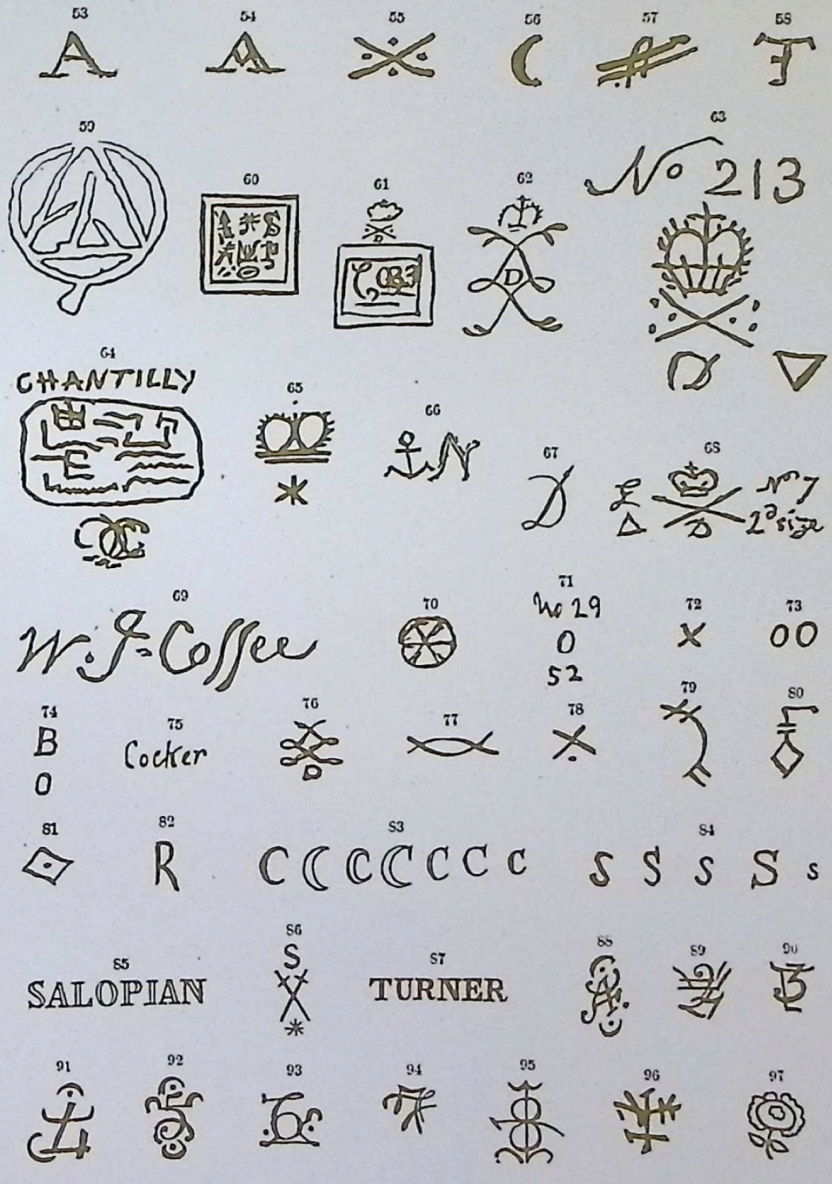
127. KIEV, Russia. Pottery.

128. KORZEC, Poland. Pottery.

MARKS ON POTTERY AND PORCELAIN OF ENGLAND



MARKS ON POTTERY AND PORCELAIN OF ENGLAND—Continued



MARKS ON POTTERY AND PORCELAIN OF ENGLAND—Continued

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MARKS ON POTTERY AND PORCELAIN OF ENGLAND—Continued

1–18. Bow. Scratched marks, resembling 4, 11, and other unintelligible scratches occur. Other marks are in color; sometimes as in 14, 15, 16, 18 in two colors.

19. Bow? Bristol? Impressed mark. Uncertain.

20, 21. CHELSEA. The triangle impressed was formerly assigned Bow till discovery of piece with mark 21. It is on an English pottery tea pot in the T.-P. collection.

22. CHELSEA. Anchor embossed. Early mark.

23, 24. Chelsea. Forms of the anchor mark in colors or gold. The anchor was used by many other factories.

25, 26. Uncertain. Bow?

27, 28. DERBY. Chelsea-Derby period.

29, 30. Derby. Crown-Derby period. 30 supposed to be mark on pieces made at Chelsea, after the purchase by Duesbury, and before closing the works.

31. Derby. A mark of Duesbury's time, date unknown.

32, 33, 34, 35. Marks used from about 1788. The earliest in puce or blue, later in red. 34 is of Duesbury & Kean.

36. Derby. Bloor's mark, 1825-'30.

37–41. Derby. Bloor's marks.

42. Derby. Modern mark of S. Hancock, present owner.

43, 44. Derby? Uncertain marks on pieces resembling Derby.

45, 46. Derby. Copies of Sèvres and Dresden marks on Derby porcelain.

47. Derby. On a statuette.

48–52. Derby. 48, 49, 50 are imitations of a Chinese symbol. 51 is uncertain, perhaps of Bloor's time. 52, a star, often impressed on figures.

53–57. Bow? These marks occur in blue on figures.

58. Bow? Supposed monogram of Fry in blue.

59. Bow? Impressed.

60. DERBY. On service made for the Persian ambassador.

61. Derby. On a plate.

62. Derby. Used in 1842. Imitation of Sèvres.

63–76. Derby. On various pieces. 71–75 are marks of Cocker, on figures, etc., made by him at Derby till 1840, and after that in London; 76 is an imitation of a Sèvres mark.

77–82. WORCESTER. Workmen's marks on Worcester porcelain.

83. CAUGHLEY. Forms of the crescent mark, and C in blue.

84. Caughley. Forms of S, for Salopian. in blue or impressed.

MARKS ON POTTERY AND PORCELAIN OF ENGLAND—Continued

85. Caughley.

86, 87. Caughley.

88–96. Caughley. Numerals 1, 2, 3, etc., in fanciful style on printed wares.

97. Caughley. Mark of Rose?

98. COALPORT.

99–104. COLEBROOK-DALE. The first three are the older marks. 102, adopted 1851. 103 is a modern mark, being a monogram of S. C., for Salopian, Colebrook-Dale, and including C, for Caughley or Coalport; S, for Swansea; and N, for Nantgarrow, the combined factories.

105. SHELTON. The *New Hall* factory. Modern marks of this factory are HACKWOOD, or HACKWOOD & CO., from 1842 to 1856; then C & H, *late Hackwood,* for Cockson & Harding; and since 1862 HARDING.

106–110. PINXTON.

111–132. WORCESTER. The early mark is the letter W, in various forms, as in 112. This stands for Worcester or Wall.

The crescent, also in different forms, as in 113, in blue, gold or impressed, was used prior to 1793. It must not be mistaken for the crescent of Caughley, which it closely resembles, so that specimens can sometimes be identified only by the paste or the decorations.

The marks numbered 111 are workmen's marks. These do not identify specimens with certainty, as of Worcester, for similar marks are found on other porcelains.

The square marks, 114, 115, 116, are early marks, imitating Oriental.

Marks 117, 118, 119 are found on prints, and are the signatures of Robert Hancock, engraver. The anchor in 118 and 119 may be of Richard Holdship.

The 120–126 are early marks, fanciful imitations of Chinese. Other marks occur, resembling these in character.

127, 128, 129, 130 are imitations of the crossed sword mark of the Dresden factory.

131 is an imitation of the mark of Sèvres.

132 is an imitation of the mark of Chantilly.

133–146. WORCESTER (continued from previous page). Flight purchased the works (1783), and used his name, impressed (mark 133), or painted (134), sometimes with the crescent mark in blue. 133 and 134 were used till 1792. After the king's visit, in 1788, mark 135 was sometimes used.

MARKS ON POTTERY AND PORCELAIN OF ENGLAND—Continued

136. Scratched mark of Barr after 1793.
137. Flight & Barr, 1793–1807.
138–140. Flight, Barr & Barr, 1807-'13. The F. B. B. impressed.
139. Impressed mark, used 1813-'40.
141. Printed mark, used 1813-'40.
142. Chamberlain, 1788 to about 1804.
143. Chamberlain, 1847-'50. Impressed or printed.

A printed mark, *Chamberlain's Regent China, Worcester, etc.*, under a crown, was used from 1811 to about 1820.

A written mark, *Chamberlains, Worcester, & 63 Piccadilly, London*, was used about 1814.

A printed mark, CHAMBERLAINS, WORCESTER, & 155 NEW BOND ST. LONDON, under a crown, was used from 1820 to 1840. After the union of the two factories in 1840, the printed mark was CHAMBERLAIN & CO., 155 NEW BOND ST., & NO. 1 COVENTRY ST., LONDON, under a crown.

In 1847 the mark was simply *Chamberlain & Co., Worcester.*

From 1847 to 1850 mark 143 was used.

144 was used 1850-'51.

145. Mark adopted by Kerr & Binns, 1851, and since used.
146. Kerr & Binns, on special work.
147. PLYMOUTH. In blue, red or gold.

148–164. BRISTOL. The general mark is a cross (149), in slate color, blue, or in the paste, with or without numbers and other marks. Numbers from 1 to 24 are thought to be of decorators. B, with a number (marks 151–154), was frequently used. 155 shows Bristol and Plymouth combined; 157, John Britain, foreman in the factory. 159 shows an embossed T over the cross in blue. The Dresden mark was frequently used, as in 160, 161, 162, 163, in combination with numbers, etc. 164 is probably a workman's mark.

165–169. STOKE. *Minton.* 165 is the earliest mark. 166, 167 are also early marks. 168 was used about 1850, and 169 later.

170–174. Stoke. Marks of Josiah Spode, father and son. 170 is an old mark, neatly penciled in various colors.

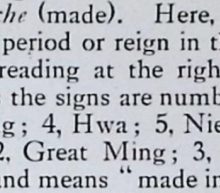
175–183. Stoke. Marks of the several successors of Spode since 1833.
175. Copeland & Garret, 1833-'47.
176. Used by Copeland & Garret.
177. Copeland & Garret.
178, 179. Copeland & Garret, 1833-'47.
180. Copeland, 1847-'51.

MARKS ON POTTERY AND PORCELAIN OF ENGLAND—Concluded

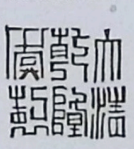
181. Copeland, after 1851.
182. Copeland used, 1847-'67.
183. W. T. Copeland & Sons, after 1867.
184. ROCKINGHAM. Adopted about 1823. The mark of *Brameld* from 1807 was his name impressed, sometimes with a cross and four dots. Tea pots have impressed marks: MORTLOCK, CADOGANS, MORTLOCK'S CADOGAN, ROCKINGHAM. Coffee pots had sometimes the pattern name NORFOLK impressed.
185–187. SWANSEA. The name SWANSEA, stenciled or impressed, was used about 1815; also SWANSEA, DILLWYN & CO., and DILLWYN'S ETRUSCAN WARE. Marks 185, 186 are impressed, date unknown. 187 is on an old pottery vase. *Cambrian Pottery* also appears.
188. NANTGARROW, 1813-'20, painted, impressed or stenciled. *Mortlock,* in gilt, occurs on ware decorated in London, and also on Swansea ware.
189. LONGPORT. *Davenport's* mark. The earliest mark was LONGPORT, or DAVENPORT LONGPORT. The marks are impressed or printed, and forms vary. After 1805, on ironstone wares the anchor was in a portico.
190. LIVERPOOL. *Richard Chaffers.*
191. Liverpool. *Pennington.* In gold or colors.
192. Longport. *Rogers.* Pottery and ironstone.
193. LANE DELPH. *C. J. Mason.* Various other marks, including the name. The oldest marks include the name, MILES MASON; a mark is MASON'S CAMBRIAN ARGIL; and a late mark, FENTON STONE WORKS, C. J. M. & Co.
194. TUNSTALL and BURSLEM. *Bridgwood & Clark,* 1857.
195. LONGTON. *Hilditch & Son.*
196. Tunstall. *Bowers?*
197. Longton. *Mayer & Newbold.*
198, 199. On Elers ware tea pots.
200. YARMOUTH. *Absolon.*
201, 202, 203. LEEDS. 201 is *Charles Green.*
204. LANE-END. *Turner.*
205. EDINBURGH (Portobello) pottery.
206, 207, 208. Liverpool. 206, 208 are Herculaneum pottery. Marks of this pottery are found impressed, painted and printed on bottoms and sides of pieces. 207 is of *Case & Mort,* proprietors from 1833.
209–214. BURSLEM and ETRURIA. Marks of *Wedgwood* and his factory. The most common mark is the word WEDGWOOD, impressed.

MARKS AND SYMBOLS ON PORCELAIN OF CHINA AND JAPAN

Chinese marks are dates, mottoes expressive of good wishes, indications of the rank and quality of the persons for whose use the wares are intended, symbolic signs, etc. The method of dating is usually by the name of the dynasty and reign of the ruling sovereign. It is customary in China to give to each reign a name, such as "the brilliant," "the excellent," etc. So, also, with the dynasties. The "Ming" Dynasty means the "illustrious" dynasty. With the names of the dynasty and the reign sometimes occur two signs for two words—*nien* (years or period) *che* (made). Here, for example, is one of the marks of a period or reign in the Ming Dynasty. It commences in reading at the right hand, top, and is read downward as the signs are numbered, thus: 1, Ta; 2, Ming; 3, Ching; 4, Hwa; 5, Nien; 6, Che; which is, in English, 1, 2, Great Ming; 3, 4, Ching-hwa; 5, 6, period made; and means "made in Ching-hwa period of Great Ming Dynasty." The Emperor Tchun-ti reigned 1465-'87, and his reign was called the Ching-hwa period. It will be seen that the third and fourth of these signs are the name of the period. Accordingly, in the following table we omit the dynasty signs and those signifying "period made," and give only the two characters which name the period. Porcelains having the "six marks," so called, of the period above given are more highly esteemed than any others. Those of the Yung-lo, Seun-tih, Kea-tsing and Wan-leih periods of the Ming Dynasty are also prized. All these are admirably counterfeited, with the marks, in modern times. Careful examination and comparison with the mark given in the table are necessary; for Chinese workmen were not always skilful writers, and the same mark, written by different hands, varies quite as much as English handwriting.



Another class of Chinese marks are seal marks. These are in characters used only for such purposes, and the signs are of similar value to those in the six marks. The example here given reads, "Made in the period of Kien-long (1736-'95) of the Thsing Dynasty. Potters' names and factory marks rarely occur on Chinese ware. Square marks, resembling seal marks, but illegible, are common.



The various symbolic marks on Chinese wares are but little understood, as we know little of the Chinese civilization. It is supposed that some forms, occurring more frequently in the decorations of pieces, have reference to the class of people for whom the wares were made.

Japanese marks are rare on old specimens. Dates are on the same system with the Chinese. On both wares marks are sometimes impressed, but usually painted in color. Most of the Japanese marks in the tables are found on modern fabrics.

MARKS AND SYMBOLS ON POTTERY OF CHINA

Marks of Periods

Ta Ming Dynasty, 1368-1647.

Hung-woo, 1368.

Keen-wan, 1399.

Yung-lo, 1403.

Hung-he, 1425.

Seuen-te, 1426.

Ching-thung, 1436.

King-tae, 1450.

Theen-shun, 1457.

Ching-hwa, 1465.

Hung-che, 1488.

Ching-tih, 1506.

Marks of Periods

Kea-tsing, 1522.

Lung-king, 1567.

Wan-leih, 1573.

Tae-chang, 1620.

Theen-khe, 1621.

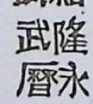
Tsung-Ching, 1628.

Tsung-kwang, 1644.

Shaou-woo, 1646.

Lung-woo, 1647.

Yung-leih, 1647.



Ta Thsing Dynasty, 1616-1861.

Marks of Periods

Theen-ming, 1616.

Theen-tsing, 1627.

Tsung-te, 1636.

Shun-che, 1644.

Kang-he, 1662.

Yung-ching, 1723.

Kien-long, 1736.

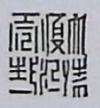
Kea-king, 1796.

Taou-kwang, 1821.

Han-fung, 1851.

Thung-she, 1861.

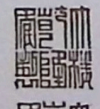
MARKS IN THE SEAL CHARACTER



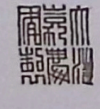
Shun-chee, 1644.

Kang-he, 1662.

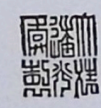
Yung-ching, 1723.



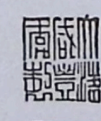
Kien-long, 1733.



Kea-king, 1796.

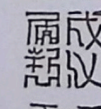


Taou-kwang, 1822.

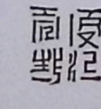


Han-fung, 1851.

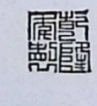
Thung-che, 1861.



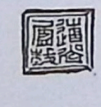
Ching-hwa, 1465. Forgery on modern work.



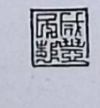
Shun-che, 1644. Another form of four marks.



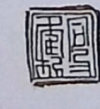
Kien-long, 1736. Another form.



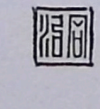
Taou-kwang, 1822. Another form.



Han-fung, 1851. Another form.



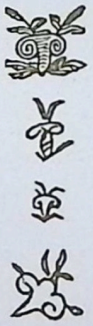
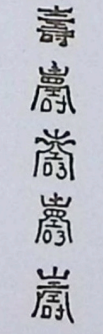
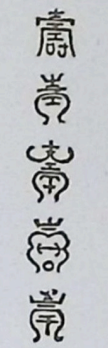
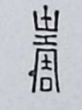
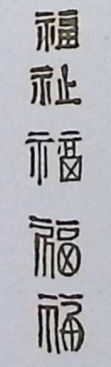
Thung-che, 1861. Another form.



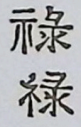
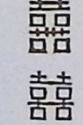
Thung-che. Name only.

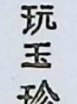
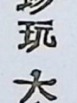
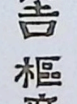
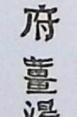
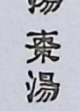
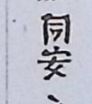
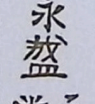
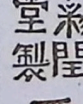
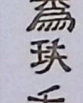
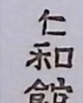
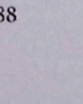
MARKS AND SYMBOLS ON POTTERY OF CHINA

Continued

Marks, Symbols, etc.	
	Three forms of the two fish mark, found on old blue ware: one of the earliest known, from 969–1106.
	The sesamum flower. Various flower marks are found, in ancient and modern periods.
	Hoa: a small flower inside a cup. Marks the Yung-lo period, 1403–1424.
	Butterfly.
	Show: long life; a wish for longevity, common in one or another of these and other forms on porcelain: sometimes repeated a hundred or more times. Such pieces are called "hundred show."
	
	Circular show mark.
	Oval show mark.
	Thin form of show.
	Fuh-che: happiness.

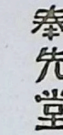
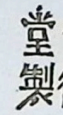
MARKS AND SYMBOLS ON POTTERY OF CHINA
Continued

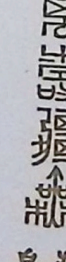
Marks, Symbols, etc.	
	Fuh-che: happiness.
	Luh: wealth.
	Keih: good luck.
	Yuh: a gem; precious thing
	Wan: literature.
	Hing: flourishing.
	Ke: a vessel; vase; ability.
	Paou: precious.
	Ting: perfect.
	Tsuen: perfect; a name.
	King: good wishes.
	A name.
	Woo-fuh: the five blessings—long life, health, riches, love of virtue, a natural death.
	Woo-chin: the five blessings.
	Chin-yuh: precious gem.

Marks, Symbols, etc.		
	Yuh-chin: precious gem.	
	Wan-yuh: beautiful gem.	
	Chin-wan: valuable rarity.	
	Ta-keih: prosperity; good luck.	
	Choo-foo: a polite expression in China. Mark used 1260–1367.	
	Keang-tang: preserved ginger. Used 1522–1566.	
	Tsaou-tang: preserves; chow-chow. Used 1522–1566.	
	Tung-gan, a name.	
	Yung-ching, a name.	
	Tsae Jun tang che	Made for the brilliant hall of the middle.
	Wei foo ching	Made to add to the jasper.
	Jin ho kwan	Hall of brotherhood.

MARKS AND SYMBOLS ON POTTERY OF CHINA

Continued

Marks, Symbols, etc.		
	Fung seen tang	Hall of ancestors.
	Tang Khe che yuh	Made for hall of wonderful beauty.
	Tang Ching che ti	Made for hall of virtuous study.
	Tang Pi che yuh	Made for hall of jeweled girdle.
	Tang Tze che tze	Made for hall of violet embroidery.
	Tang King che wei	Made for hall of worship.
	Kea Yuh ke tang	Beautiful vase for hall of gems.
	Chang Fuh chun kwei	Wealth, honor, long youth.
	Chang Fuh ming kwei	Wealth, honor, long life.
	Tze Teen fuh kwan	Heaven grant happiness.
	Jou Khe woo chin	Wonderful as the five precious things.

Marks, Symbols, etc.		
	Jou Khe yuh chin	Wonderful gem, resembling a jewel.
	Jou Khe yuh wan	Same signification.
	Ya Ching tsei yu	Remarkable meeting of philosophers and friends.
	Chin Poo wan ku	Valuable curiosity for antiquaries.
	Paou Wan ting yah	Elegant, perfect, precious ting; metal incense pot.
	Shan Wan tow shang	Compliment; comparing to a mountain and the North star.
	Ya Mei che yuh	Made for one who knows gems.
		Wan show woo keang: an unlimited long life.
	Wan show woo keang	Same. This is in the seal character.
	Keang ming kaou (name); tsaou (maker).	

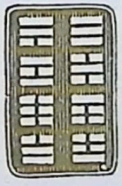
MARKS AND SYMBOLS ON POTTERY OF CHINA
Continued

Marks, Symbols, etc.		
萬明祥製	Wan ming cheang (name) che (made).	
御製雍正	Yung ching yu che; made for Yung ching.	
奇后連成	Leen ching khe how (not translated).	
珍藏若深	Jo shin chin tsang: precious property; Jo shin (name).	
珍藏若深	Same mark.	
珍秩莊陳	Same mark.	
鼎之珍	Ting Khe che she chin paou — 奇石寶	Ting of very precious and costly stone.
鼎之珍	Ting Khe che yuh chin paou — 奇玉宝	Same meaning.
玉雅製	Yuh Chung ya yuh che mei — 忠有美	For the true hearted, elegant gem made.
福如東海	Long life as the south mountain. Happiness like the east sea. — 壽比南山	

Marks, Symbols, etc.	
	Badge of authority; on pieces for mandarins.
	Tablet of honor, including the swastika.
	Another form of the same.
	Another form.
	A mandarin mark of honor.
	The sounding stone.
	Another sounding instrument.
	Sacred ax.
	Shell or helmet?
	Shell?
	Shell?
	Standard table.
	Leaves. Frequent marks.
	Treasures of writing, stone for ink, brushes for writing, a roll of paper, etc. Found as a mark; and common, as are many of the previous designs, in the surface decorations of porcelains.
	

MARKS AND SYMBOLS ON POTTERY OF CHINA

Concluded

Marks, Symbols, etc.	
	Beautiful vase for the wealthy and noble. Otherwise translated: wealth, honors and intellect.
	Probably a name.
	Valuable vase for divining.
	These three combinations or arrangements of lines, known as the eight diagrams of Fuhhi, frequently occur on Chinese porcelain. They have reference to certain mystic ideas, utterly unintelligible to us, relating to the genders, the principles of creation, the origin of all things, etc., etc. Chinese philosophers profess to understand their meaning and suggestions, and the Chinese regard them as talismanic.
	
	

Marks, Symbols, etc.	
	Bamboo leaves, used as a mark at King-te-chin, 1573–1619. We have also found the leaves used as an exterior decoration of porcelain dishes which we believe to be Persian.
	
	Square marks, common on old specimens, in these and many other forms.
	Paou: precious.

Marks of Periods.	
建徳	Ken-tok, 1370.
文中	Bun-tin, 1372.
天授	Ten-du, 1375.
弘和	Ko-wa, 1380.
元中	Gen-tin, 1380.
明徳	Mei-tok, 1393.
應永	O-yei, 1394.
正長	Show-tiyo, 1428.
永享	Yei-kiyo, 1429.
嘉吉	Ka-kitsu, 1441.
文安	Bun-an, 1444.
宝徳	Ho-tok, 1449.
享徳	Kiyo-tok, 1452.
康正	Ko-show, 1455.
長禄	Chiyo-rok, 1457.
寛正	Kwan-show, 1460.
文正	Bun-show, 1466.
應仁	O-nin, 1467.
文明	Bun-mei, 1469.
長享	Chiyo-kiyo, 1487.
延徳	En-tok, 1489.
明應	Mei-o, 1492.
文亀	Bun-ki, 1501.

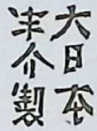
Marks of Periods.	
永正	Yei-show, 1504.
大永	Dai-jei, 1521.
享禄	Kiyo-rok, 1528.
大永	Di-yei, 1532.
弘治	Ko-dsi, 1555.
永禄	Yei-rok, 1558.
元亀	Gen-ki, 1570.
天正	Ten-show, 1573.
文禄	Bun-rok, 1592.
慶長	Kei-chiyo, 1596.
元和	Gen-wa, 1615.
寛永	Kwan-jei, 1624.
正保	Show-ho, 1644.
慶安	Kei-an, 1648.
承應	Show-o, 1652.
明暦	Mei-reki, 1655.
萬治	Man-dsi, 1658.
寛文	Kwan-bun, 1661.
延寶	Yen-po, 1673.
天和	Ten-wa, 1681.
貞享	Tei-kiyo, 1684.
元禄	Gen-rok, 1688.
寶永	Ho-yei, 1704.

Marks of Periods.	
正徳	Show-tok, 1711.
享保	Kiyo-ho, 1717.
元文	Gen-bun, 1736.
寛保	Kwan-po, 1741.
延享	Yen-kiyo, 1744.
寛延	Kwan-jen, 1748.
寶暦	Ho-reki, 1751.
明和	Mei-wa, 1764.
安永	An-jei, 1772.
天明	Ten-mei, 1781.
寛政	Kwan-sei, 1789.
享和	Kiyo-wa, 1801.
文化	Bun-kwa, 1804.
文政	Bun-sei, 1818.
天保	Ten-po, 1834.
弘化	Ko-kua, 1844.
嘉永	Ka-yei, 1848.
文久	Bun-se, 1854.
元治	Man-yen, 1860.
慶應	Bun-kin, 1861.
明治	Gen-di, 1861.
安政	Kei-o, 1865.
萬延	Mei-di, 1868.

MARKS ON JAPANESE POTTERY AND PORCELAIN
Continued

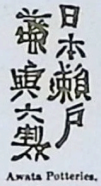
Enamel Marks.

Enamel mark. Forgery? of Chinese date 1645.



Di-Nipon: Great Japan.

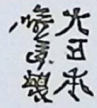
Han-suki, maker. (Enamel.)



Nipon: Japan. Next signs illegible.

Eurok, maker. (Enamel.)

Awata Potteries.



Great Japan.

Dioto, maker.

Tokio, name of factory; and maker's names.

Ae-rako, a name.

Ki-yo, a name.

Yu-ah-su-zan, a name.

Awata.

Banko Potteries.

Banko.

Banko.

Banko Potteries.

Nipon, Japan.

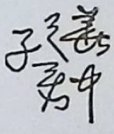
Ari-nori, name.

Banko.

Shing-en, a name.

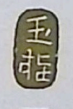
Banko.

Banko.



Banko: eminent of flowers.

Banko: an old mark.



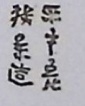
Guso, name.

Maker's mark.

Bishu Porcelain.

Bishu.

Hiradoson Porcelain.



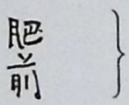
Hiradoson.

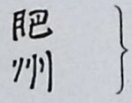
Shi-ae, maker.

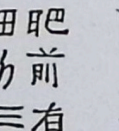
Hiradoson and maker's name.

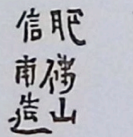
MARKS ON JAPANESE POTTERY AND PORCELAIN
Continued

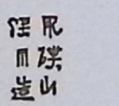
Hezen Porcelain.

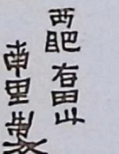

Hezen, or Fisen.

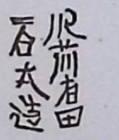

He-shu.


Hezen:
Haritikami, maker.

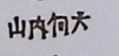

Hezen:
Shinpo, maker.

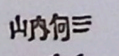

Hezen:
Reksen, maker.

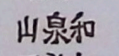

West Hezen:
Nan-di, maker.

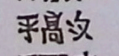

He-shu (Hezen):
Tentai, maker.
Haridan, factory.

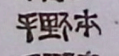
The following are Hezen factory villages:

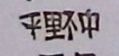

Great mountain between rivers.

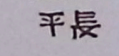

Three mountains between rivers.


Mountain of springs.


Beautiful upper plain.


Beautiful chief plain.


Middle plain.


Long plain.

Hezen Porcelain.


Great vase.


Medium vase.


White stream.


Street of painters in red.


The cave.


South bank.


Outside tail.


Black field.

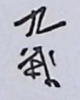

Firo-se.


Itche-na-se.


Imali.

Kaga Pottery and Porcelain.


Kutani: the nine valleys.


Kutani.


Kutani.


Made at Kutani.


Made at Kutani.

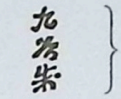

Kagayo Kutani.

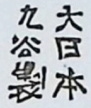

The same.

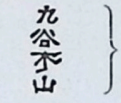

The same.

MARKS ON JAPANESE POTTERY AND PORCELAIN
Continued

Kaga Pottery and Porcelain.


Kagayo Kutani.


Great Japan, made at Kutani.


Kutani Bok-zan.

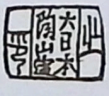

Kutani: Touzan.


Porcelain Mountain (Touzan).

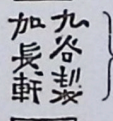

Rising-sun Mountain.


Ponzan.


Dio, maker.


Great Japan; Garden Mountain; strong pottery.


To-o.


Made at Kutani, long house.


Kutani.

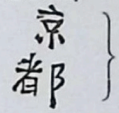
Kaga Pottery and Porcelain.

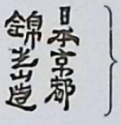

Long life.


Happiness


Riches.

Kioto Pottery.


Kioto.


Kioto, Japan; Kinkou-san, maker.

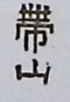

Kinkousan, maker.

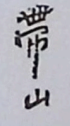
Satsuma Pottery.


Itsigaya, a place.

Tai-zan, maker.


Tai-zan.

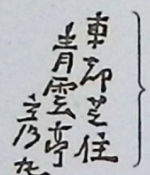

Tai-zan.


Tai-zan.

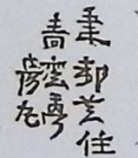

Den-ko, name.

MARKS ON JAPANESE POTTERY AND PORCELAIN
Continued

Shiba (Tokei) Pottery.

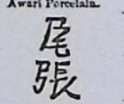


Hikomakoro, maker at Sie-untei, in Shiba.

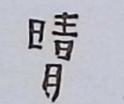


Unknown.

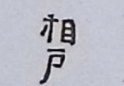
Awari Porcelain.



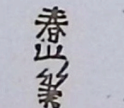
Awari.



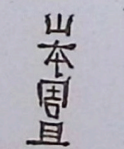
Saeng-ets: beautiful moon; name of celebrated painter.



Ai-we, name.

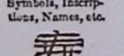


Spring Mountain.



Painter's name (Yamamoto Sho-tan).

Symbols, Inscriptions, Names, etc.



Long life.

Long life.

Symbols, Inscriptions, Names, etc.

Happiness.

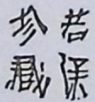
Wealth.

So-o.

Kami, maker.

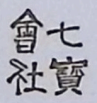
Rakou-masa, maker.

Huzi-nori, name.

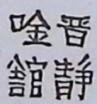


Imitation of Chinese marks: "Precious property of Joshin."

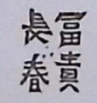
Shin-fo-se-seki, name.



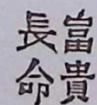
Seven honorable societies.



Hall of increase of peace, harmony.

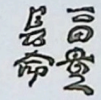
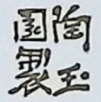
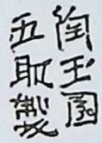
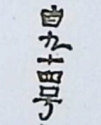
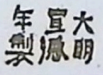
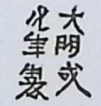
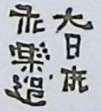
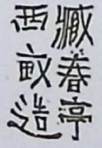


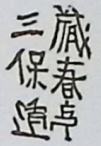
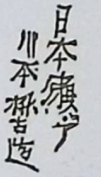
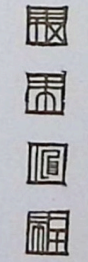
Wealth, honors and long youth.



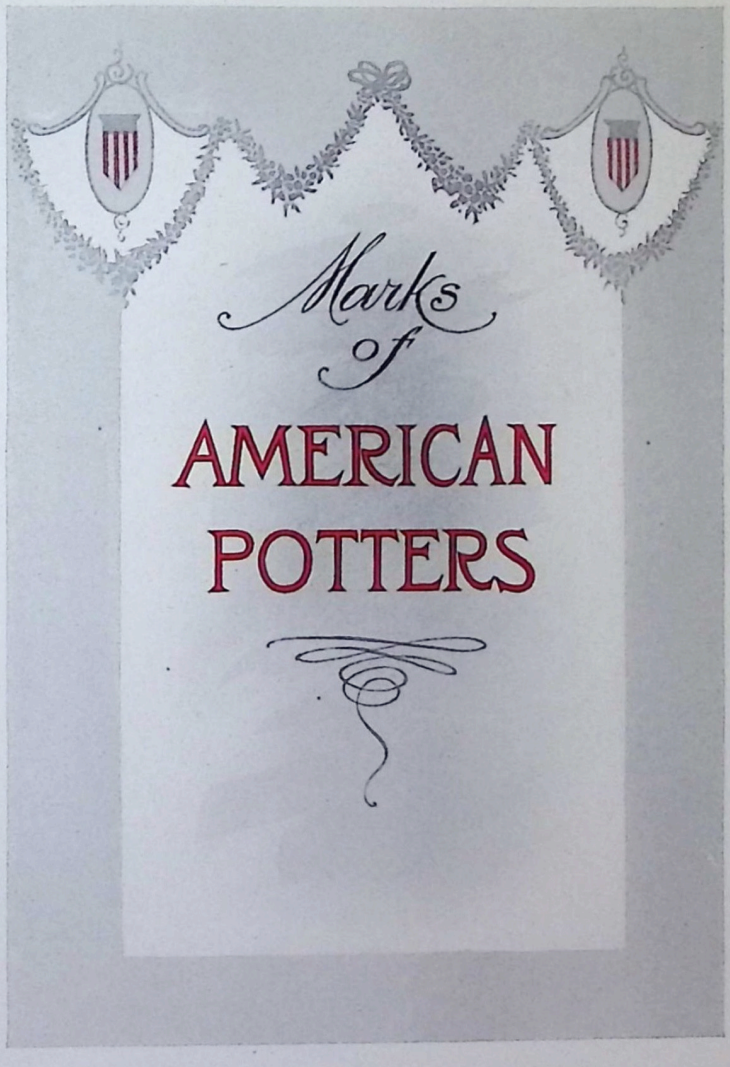
Wealth, honors and long life.

MARKS ON JAPANESE POTTERY AND PORCELAIN
Concluded

Symbols, Inscriptions, Names, etc.	
	Wealth, honors and long life.
	Made at beautiful garden.
	The same; maker's name (Gos-ki) added.
	On ware probably Hezen.
	Chinese mark of 1426 on Hezen ware.
	Chinese mark of 1465 on Hezen ware.
	Great Japan; Hirak, maker.
	Pavilion of spring. Tsi-tze, maker.

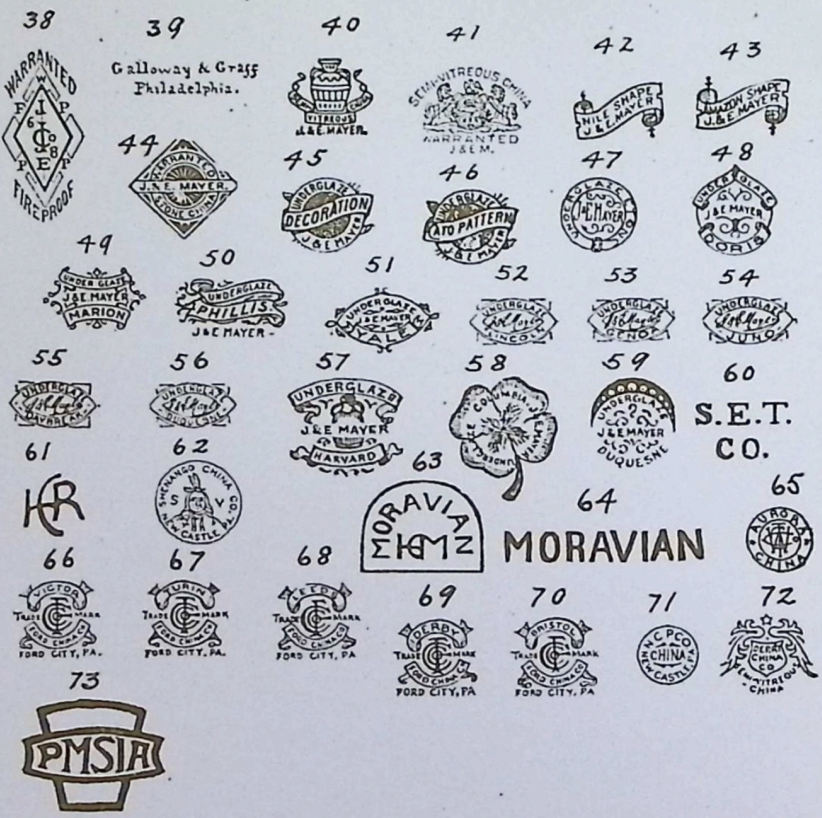
Symbols, Inscriptions, Names, etc.	
	Same factory name. Sanfo, maker. These are on Nagasaki wares.
	Sito in Japan, with maker's name; Nagasaki.
	Hata, factory.
	Middle mountain.
	Itsi-yama.
	These, and many other square marks, are found on blue painted wares.

Vase by Palissy
(*Louvre*)

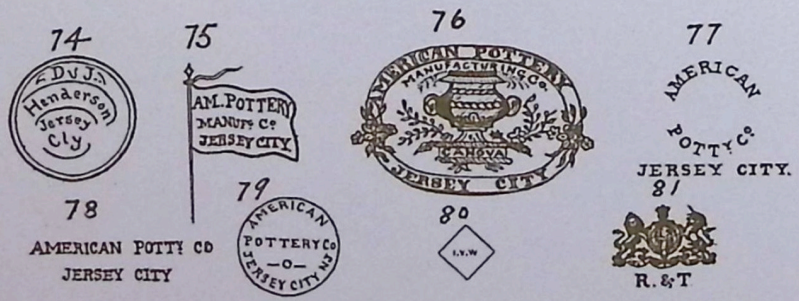

Marks
of
AMERICAN
POTTERS

MARKS OF PENNSYLVANIA POTTERIES

MARKS OF PENNSYLVANIA POTTERIES—Concluded



MARKS OF NEW JERSEY POTTERIES




82
IRON STONE CHINA
W Y S
83
WARRANTED
W.M.CO.
84
OPAQUE
PORCELAIN
85
86
87
88
89
WILLETS
90
BELLEEK
WILLETS
91
C P Co
92
93
G.P.
Co.
94
GREENWOOD CHINA
TRENTON, N.J.
95
96
97
98
99
IRONSTONE CHINA
E.T.P.Co
100
IRONSTONE CHINA
E.T.P.CO
101
E.T.P.Co.
102
M.A.P.
TRENTON.
103
M. A. P.
TRENTON
N.J.
104
105
TM&S
105A
106
107
108
M
CHINA
L
109
JOHN MADDOCK & SONS
COAL PORT
TRENTON. N.J.
110
WARRANTED
VITREOUS GLAZE
JOHN MADDOCK & SONS
COAL PORT
TRENTON N.J.
111
" J.M.&Co.
112
IRONSTONE CHINA
J.M & Co.
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GLASGOW POTTERY
— CO. —
TRENTON
N.J
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JOHN MOSES
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GLASGOW CHINA
TRENTON N.J
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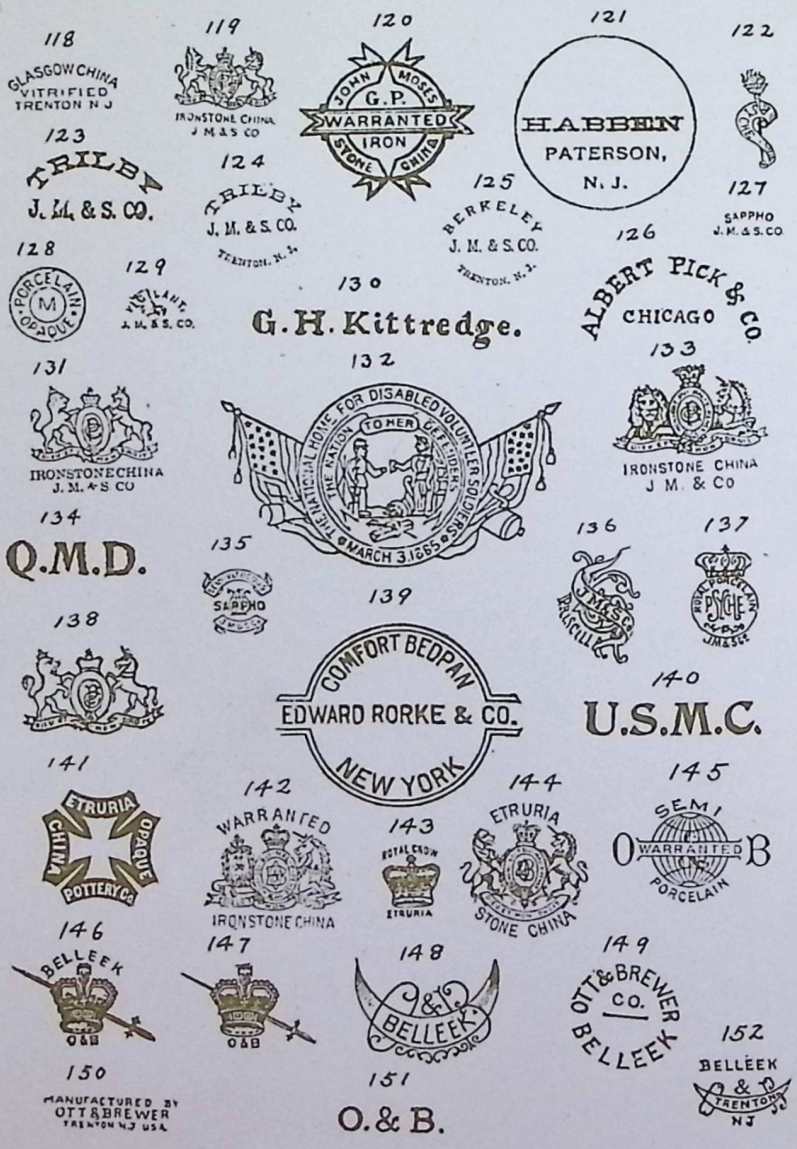
GLASGOW IRONSTONE CHINA
WARRANTED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GLASGOW CHINA
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IRONSTONE CHINA
J M & S CO
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TRILBY
J. M. & S. CO.
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TRILBY
J. M. & S. CO.
TRENTON, N. J.
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BERKELEY
J. M. & S. CO.
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ALBERT PICK & CO.
CHICAGO
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SAPPHO
J. M. & S. CO.
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PORCELAIN OPAQUE
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J. M. & S. CO.
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G. H. Kittredge.
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IRONSTONE CHINA
J. M. & S. CO
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THE NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS
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IRONSTONE CHINA
J. M. & Co
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COMFORT BEDPAN
EDWARD RORKE & CO.
NEW YORK
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U.S.M.C.
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ETRURIA
CHINA
OPAQUE
POTTERY CO.
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WARRANTED
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STONE CHINA
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PORCELAIN
O B
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BELLEEK
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BELLEEK
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OTT & BREWER CO.
BELLEEK
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OTT & BREWER
TRENTON N.J. U.S.A.
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O. & B.
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BELLEEK
&
TRENTON
NJ


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O. B. CHINA
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OTT & BRUNER CO. TRENTON
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MELLOR & CO
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MADE BY OTT & BRUNER POTTERY CO. PATENTED 1899 TRENTON N.J.
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MELLOR & CO
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IRONSTONE CHINA
MELLOR & CO
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SEMI VITREOUS
MELLOR & CO
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ETRURIA
MELLOR & CO
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BROOME
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STONE CHINA
COLONIAL & CO
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T. P. Co.
CHINA
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TRENTON
MERCER CHINA
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SEMI VITREOUS
MERCER CHINA
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SEMI VITREOUS
MERCER CHINA
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WARRANTED
SUPERIOR
IRONSTONE CHINA
MERCER POTTERY CO
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TRADE MARK
STONE CHINA
MERCER POTTERY CO
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MERCER
WARRANTED
CHINA
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SEMI VITREOUS
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MERCER POTTERY
TRENTON, N. J.
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SEMI-VITREOUS
WALDORF
MERCER CHINA
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Bordeaux
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Nassau
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IRONSTONE CHINA
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INTERNATIONAL CHINA
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N.J. POTTERY CO.
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WARRANTED
SUPERIOR
IRONSTONE CHINA
BURGESS & CAMPBELL
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BURGESS
CAMPBELL
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Royal Blue
Porcelain
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Royal Blue
B-C
Porcelain
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WILTON.
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BURGESS
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LOTUS
CAMPBELL
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JAPONICA
CAMPBELL
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BURGESS
DIAMOND
CAMPBELL
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BURGESS
ROYAL BLUE CHINA
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BURGESS
ROYAL BLUE CHINA
CAMPBELL
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ROYAL CHINA
BURGESS & CO
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RUGBY
FLINT CHINA
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Balmoral
B&C
Royal Blue
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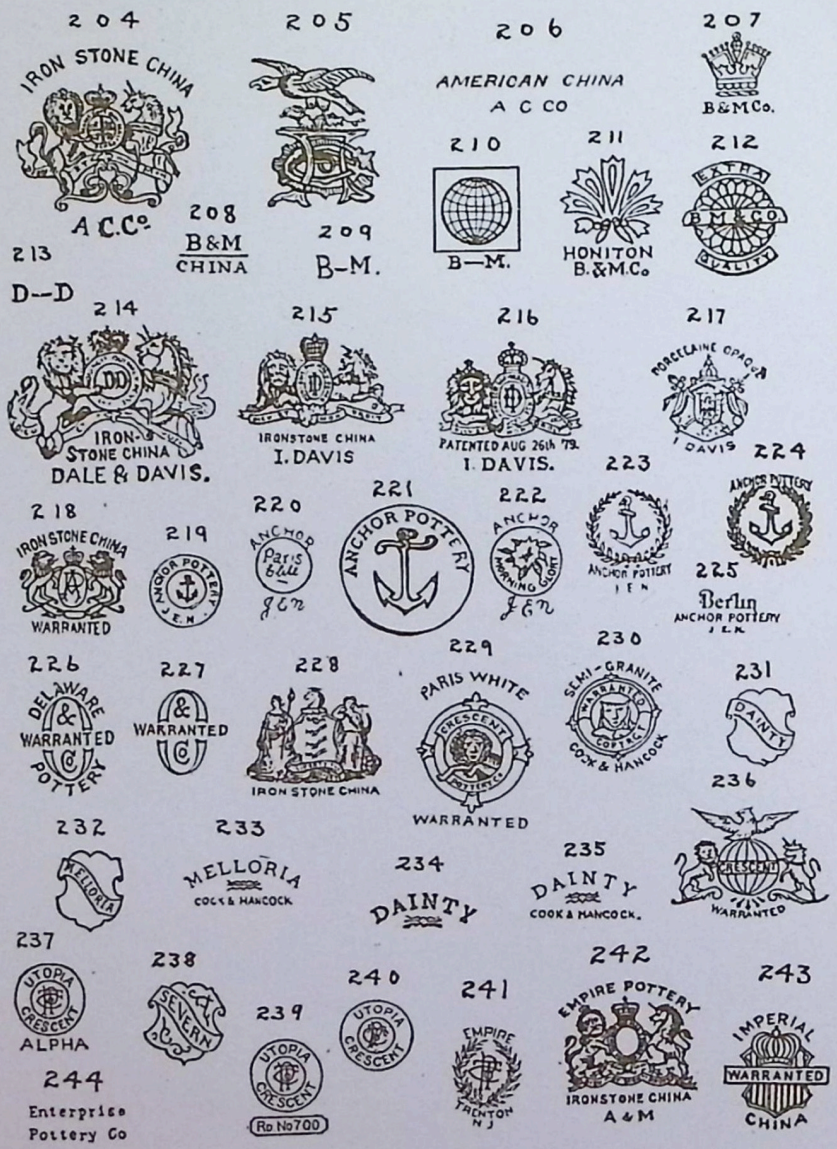
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IRON STONE CHINA
A.C.Co.
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AMERICAN CHINA
A C CO
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B&M Co.
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B&M
CHINA
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EXTRA
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QUALITY
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IRON STONE CHINA
DALE & DAVIS.
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PORCELAINE OPACA
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IRONSTONE CHINA
WARRANTED
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ANCHOR POTTERY
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ANCHOR POTTERY
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ANCHOR
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ANCHOR POTTERY
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ANCHOR POTTERY
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Berlin
ANCHOR POTTERY
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DELAWARE
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WARRANTED
POTTERY
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IRON STONE CHINA
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PARIS WHITE
CRESCENT
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SEMI-GRANITE
WARRANTED
COOK & HANCOCK
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CRESCENT
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UTOPIA
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EMPIRE
TRENTON
N J
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EMPIRE POTTERY
IRONSTONE CHINA
A&M
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IMPERIAL
WARRANTED
CHINA
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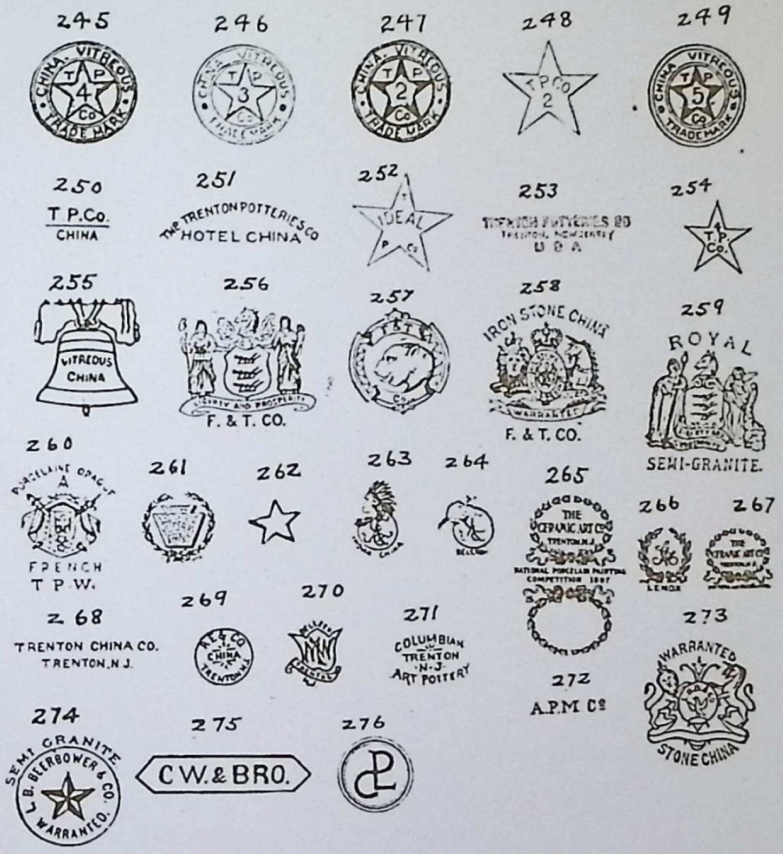
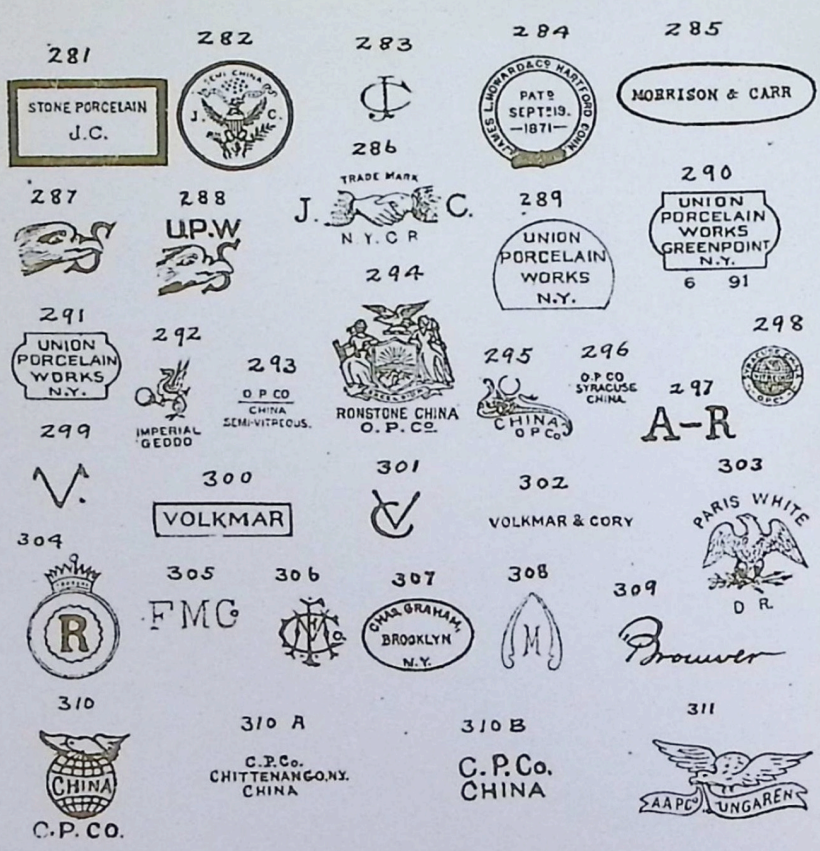
Enterprise
Pottery Co

MARKS OF NEW JERSEY POTTERIES—Concluded

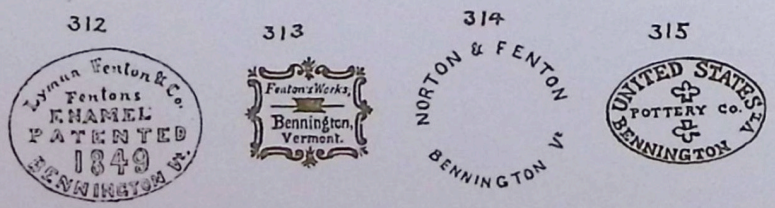


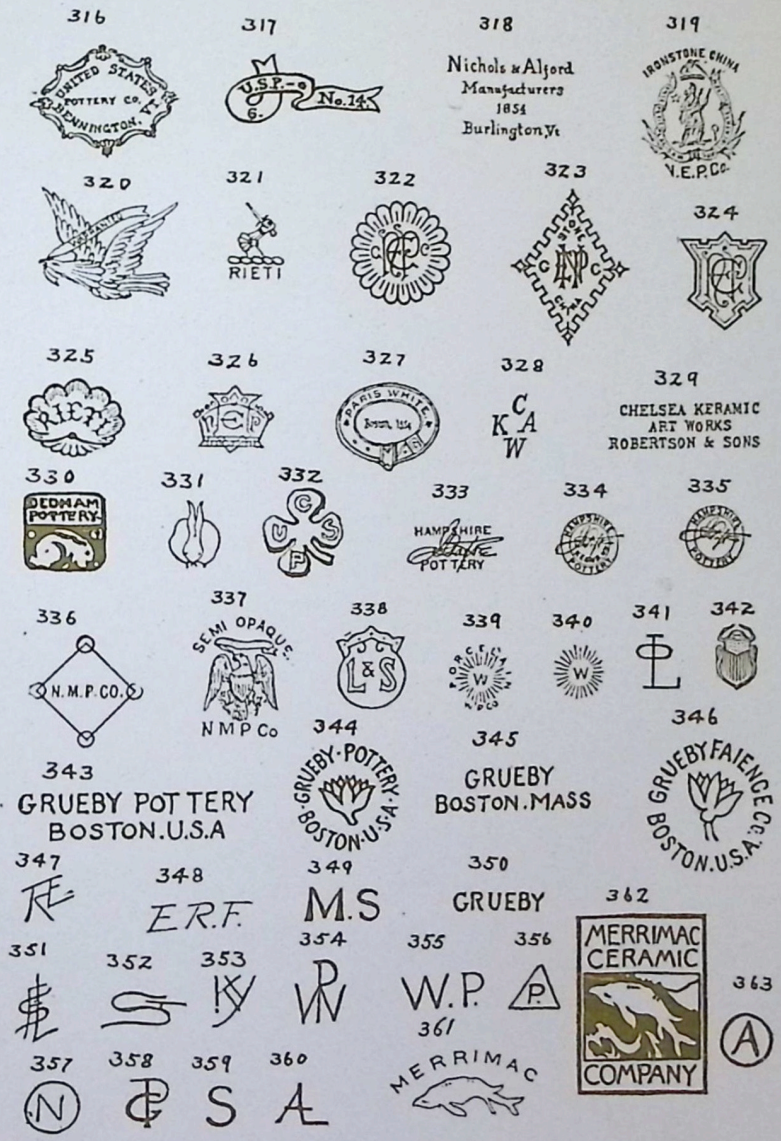
MARKS OF NEW YORK POTTERIES

MARKS OF NEW YORK POTTERIES—Concluded



MARKS OF NEW ENGLAND POTTERIES




316
UNITED STATES POTTERY CO. BENNINGTON
317
U.S.P.-G. No. 14
318
Nichols & Alford
Manufacturers
1854
Burlington, Vt
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IRONSTONE CHINA
N.E.P.Co.
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RIETI
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PARIS WHITE
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K C A W
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CHELSEA KERAMIC
ART WORKS
ROBERTSON & SONS
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EDMAM POTTERY
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HAMPSHIRE POTTERY
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N.M.P.CO.
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SEMI OPAQUE
N M P Co
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L & S
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GRUEBY POTTERY
BOSTON.U.S.A
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GRUEBY·POTTERY·BOSTON·U.S.A
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GRUEBY
BOSTON.MASS
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GRUEBY FAIENCE CO.
BOSTON.U.S.A
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E.R.F.
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M.S
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GRUEBY
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W.P.
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MERRIMAC
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MERRIMAC
CERAMIC
COMPANY
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MARKS OF OHIO POTTERIES


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DAKOTA
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TACOMA
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YALE
KT&K.
CHINA
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MAINE
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MONTANA
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WARRANTED
K.T.&K.
GRANITE
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WARRANTED
P.T.&K.
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K.T.&K.CO.
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WYOMING
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WASHINGTON
K.T.&K.
CHINA
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KT&K.
CHINA
HARVARD
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Stanford
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DETROIT
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BERLIN
K.T.&K.
CHINA
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K.T.&K.
CHINA
PRINCETON
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Virginia
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WARRANTED
K.T.&K.
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KT&K.
CHINA
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SEMI-GRANITE
THE D.E.MCN.P.CO.
LIVERPOOL
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SYDNEY.
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LELAND.
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THE O.C.T.P.CO.
SEMI-GRANITE
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OREGON.
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DREXEL
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MELROSE
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MELROSE
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WHITE GRANITE
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PREMIUM STONE CHINA
HOMER LAUGHLIN
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COLONIAL
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HOTEL
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HOTEL
CHINA
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GOLDEN GATE
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AN AMERICAN BEAUTY
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DRESDEN
HOTEL CHINA.
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DRESDEN
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YALE
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DRESDEN
HOTEL CHINA
WARRANTED
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Madrid
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Dresden
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California
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DRESDEN
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TEXAS.
465
Brooklyn
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Elsmere
467
CARTWRIGHT
BROS.
S I G
468
Avalon

469 Nautilus GP C9 E.L.O.

470 GLOBE GPCO CHINA

471 Made by Elliott Pottery Co E.L.O.

472 HOTEL G.P. CO.

473 SIRIUS

474 GPCO REGAL

475 VITREOUS GRAQUE CHINA

476 The Admiral

477 Raleigh

478 Champion

479 E.L.P. CO. WACO CHINA

480 E.L.P.CO. IRONSTONE CHINA

481 D. of R. 174.

482 WACO CHINA.

483 WACO CHINA

485 Manhattan

486

487 MURPHY & CO. VITREOUS HOTEL PORCELAIN

484 Paris Y Co. M & Co

488 EAST END P. CO E LIVERPOOL. O.

489 ROYAL IRONSTONE CHINA WARRANTED

490 Columbus

491 Alaska

492 E.E.P.CO. PORCELAIN

493 DEWEY E.E.P CO

494 SEMI-VITREOUS PORCELAIN U.S.A. EAST LIVERPOOL POTTERIES CO.

495 UNION CHINA CORINNE

496 SIGSBEE

497 UNION CHINA

498 Union Corinne

499 ELECTRIC

500 BURFORD B.P. CO. CHINA.

501 B.B. DEFENDER BURFORD BROS. P CO.

502 Burford Bros CHAMPION

503 B.B. VIGILANT BURFORD BROS P CO

504 B.B. ARTISTIC

505 BURFORDS PORCELAIN

506 BURFORD BROS. BEAUTY

507 B.B.

508 STONE CHINA CORAL B SHAPES BURFORD BROS

510 R BURFORD BROS

509 HOTEL

510 BURFORD CHINA


511
VITREOUS
512
TAYLOR LEE & SMITH CO GRANITE
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514
TAYLOR LEE & SMITH CO. PORCELAIN
515
CUGANI W.E.P.CO.
516
W.E.P.CO CHINA
517
SEVRES HOTEL CHINA
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GENEVA
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SEVRES
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BERLIN
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MELTON
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E.N.K. C.CO.
523
EDWIN M. KNOWLES CHINA CO.
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B. P CO
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T.B.&CO.
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WARRANTED BEST IRONSTONE CHINA
B. P CO.
527
ROOKWOOD POTTERY CIN. O.
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R.P.C.O.M.L.N.
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CIN ROOKWOOD POTTERY
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Rookwood Pottery Co. 1883
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ROOKWOOD 1882
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ROOKWOOD POTTERY 207 E. EASTERN AVE 1881 CINCINNATI O
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KEZONTA CINCINNATI
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KEZONTA
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C.A.P. Co.
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MATT MORGAN —CIN. O— ART POTTERY Co.
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MATT MORGAN ART POTTERY Co.
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N.J.H.
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Avon
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Losanti
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MORLEY & CO. MAJOLLICA WELLSVILLE, O.
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M.E.P.Co. IRON STONE CHINA
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SEMI CHINA
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PORCELAIN P.P. WORKS CHINA
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SEMI PORCELAIN W.P.P.CO.
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Liberty
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W.C.C.Co. SEMI PORCELAIN
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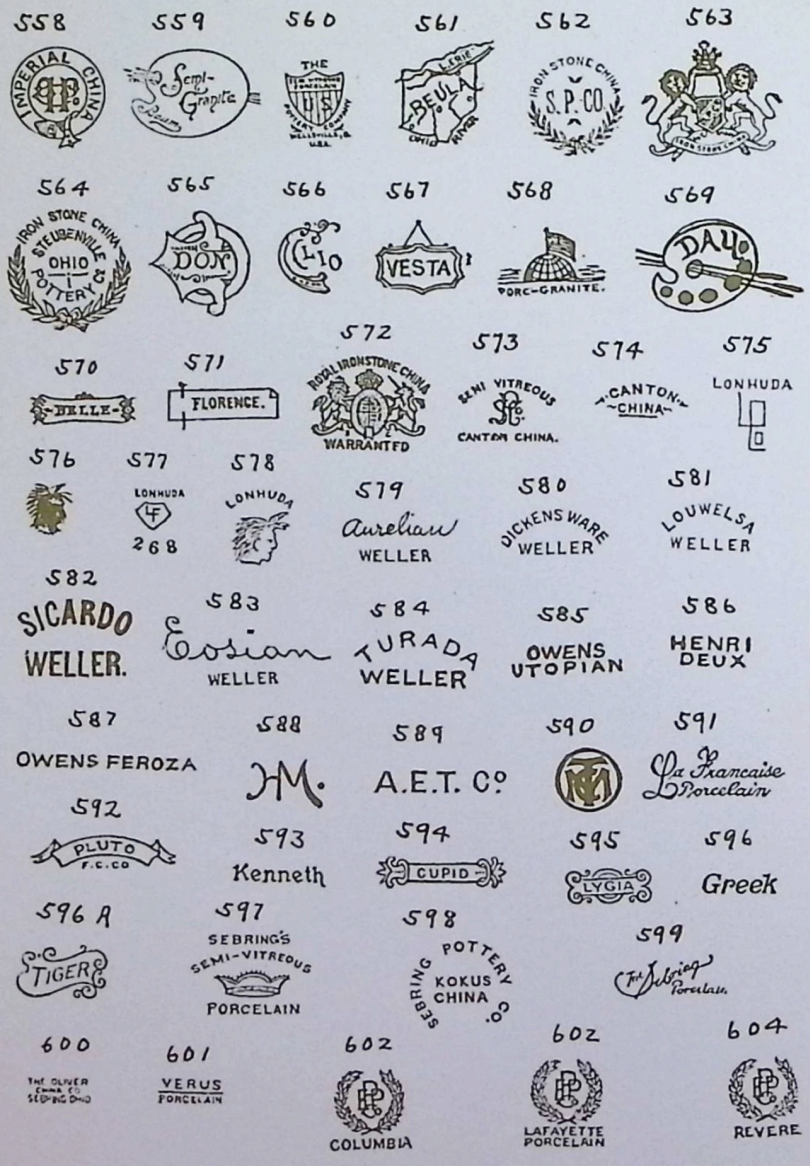
W.P.P.Co. SEMI-PORCELAIN


558
IMPERIAL CHINA
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Semi-Granite
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THE
U.S.
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ERIE
BEULA
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IRON STONE CHINA
S.P.CO
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IRON STONE CHINA
STEUBENVILLE
OHIO
POTTERY CO
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DOR
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VESTA
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PORC-GRANITE
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DAY
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BELLE
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FLORENCE.
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ROSLIN IRONSTONE CHINA
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SEMI VITREOUS
CANTON CHINA.
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LONHUDA
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LONHUDA
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Aurelian
WELLER
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DICKENS WARE
WELLER
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LOUWELSA
WELLER
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SICARDO
WELLER.
583
Eosian
WELLER
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TURADA
WELLER
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OWENS
UTOPIAN
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HENRI
DEUX
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OWENS FEROZA
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HM
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A.E.T. Co
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La Francaise
Porcelain
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PLUTO
F.C.CO
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Kenneth
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CUPID
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LYGIA
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Greek
596 A
TIGER
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SEBRING'S
SEMI-VITREOUS
PORCELAIN
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SEBRING POTTERY
KOKUS CHINA CO.
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Delphos
Porcelain
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THE OLIVER
CHINA CO.
SEBRING OHIO
601
VERUS
PORCELAIN
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COLUMBIA
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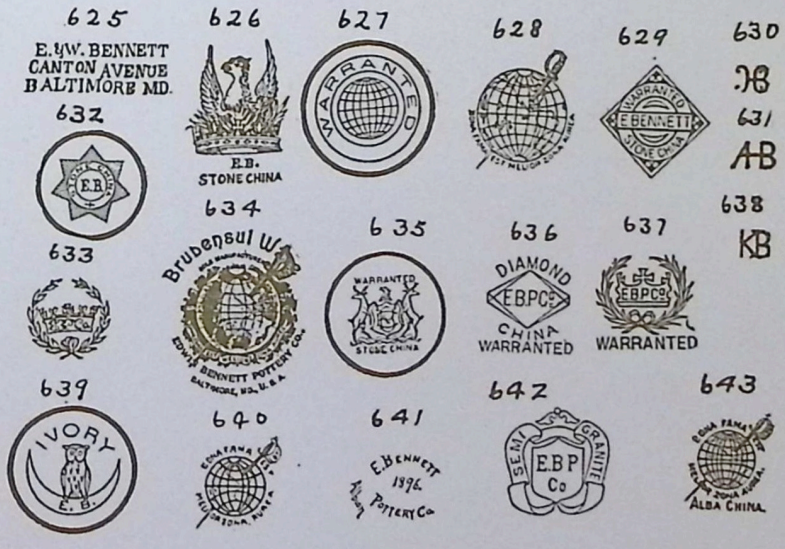
LAFAYETTE
PORCELAIN
604
REVERE

MARKS OF OHIO POTTERIES—Concluded

MARKS OF SOUTHERN POTTERIES



MARKS OF SOUTHERN POTTERIES—Continued

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BENNETT'S
MAY 5 885,
PATENT.

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BENNETT'S
SEPT. 3, 1884.
COPYRIGHT

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BENNETT'S
MAY 12, 1885
PATENT.

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CREMORNE
OPAQUE
PORCELAIN.

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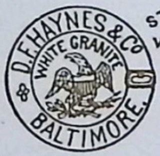

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STONE CHINA.
WARRANTED.

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MORGANTOWN

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THE WHEELING
STONE CHINA
POTTERY CO.

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THE
WHEELING
POTTERY
CO

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LA BELLE
CHINA.

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O.V.

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WARWICK
CHINA

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WARWICK
SEMI
PORCELAIN

MARKS OF SOUTHERN POTTERIES—Concluded

688 689 690 691 692 693 694

E Lycett 1902

Biloxi

G. E. OHR, BILOXI

695 696 697

NEWCOMB COLLEGE

MARKS OF WESTERN POTTERIES

698 699 700 701 702

PEORIA ILLINOIS

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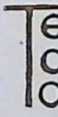
HOTEL
FPCo



JEWEL C.P.Co.

REGINA C.P.CO.

712

713 714

ALMA

HOBSON

710 711

C.P.CO. ROYAL

C.P.CO. REX

715 716 717 718 719

HELEN.

CROWN HOTEL WARE.

Crown Porcelain.

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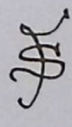
RENA.



REKSTON

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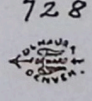

MARKS OF WESTERN POTTERIES—Concluded

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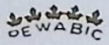
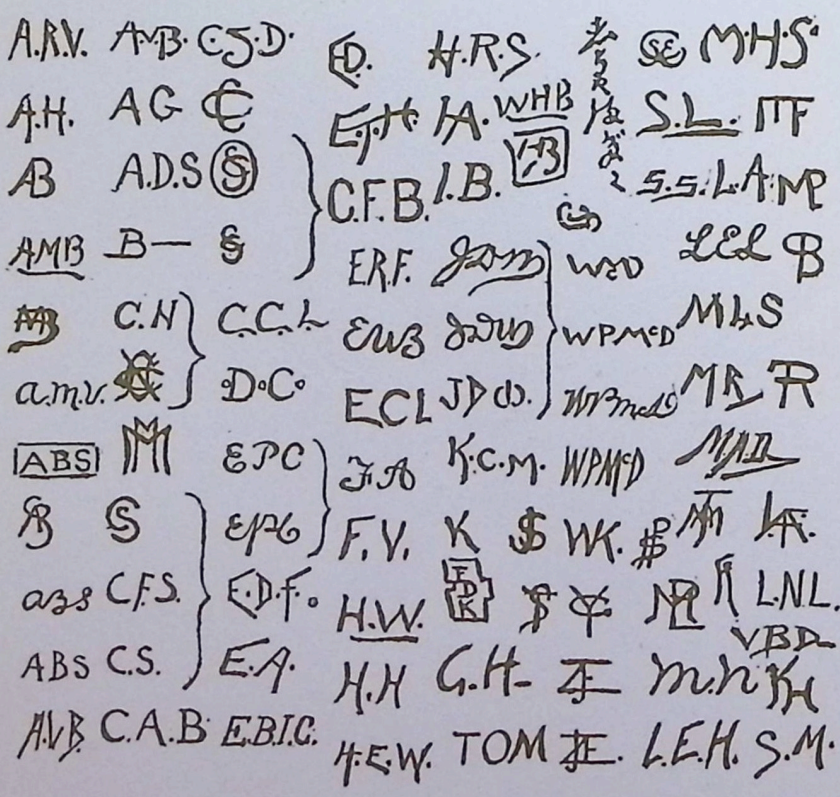


PRIVATE MARKS OF ROOKWOOD DECORATORS



MARKS OF PENNSYLVANIA POTTERIES

Plate Nos.	Established
1. Bonnin & Morris, Philadelphia, Penna.	1770
2. Joseph Smith Pottery, Bucks County, Penna.	1767
3, 4. Henry Roudebush, Montgomery County, Penna.	1811–1816
5. Samuel Troxel, Montgomery County, Penna.	1823–1833
6. George Hubener, Montgomery County, Penna.	1785–1798
7. Jacob or Isaac Tany, Bucks County, Penna.	1794
8. John Drey, Eastern, Penna.	1809
9. Andrew Headman, Rock Hill, Bucks County, Penna.	1808
10, 11. Unidentified marks on German American Pottery.	
12. Jacob Scholl, Tylers Port, Montgomery County, Penna.	1830
13. Womelsdorf, Penna.	
John Menner.	1784
Willoughby Smith.	1864
14. American China Manufactory, Philadelphia, Penna.	1825
15, 16. Tucker & Hulme.	1828
17. Judge Joseph Hemphill.	1832–1836
18–24. Private marks of workmen.	
25. Smith, Fife & Co., Philadelphia, Penna.	1830
26. Ralph Bagnall Beach, Philadelphia, Penna.	1845
27. Kurlbaum & Schwartz.	1851
28. Workman's mark.	
29. The Phoenix Pottery, Kaolin and Fire Brick Co., Phoenixville, Penna.	1867
30. Beerbower & Griffen, Phoenixville, Penna.	1877
31–34A. Griffen, Smith & Hill, Phoenixville, Penna.	1879
35–37. Chester Pottery Company of Pennsylvania, Phoenixville, Penna.	1894
38. The Philadelphia City Pottery, J. E. Jeffords & Co.	1868
39. Galloway & Graff, Philadelphia, Penna.	1810
40–59. The Mayer Pottery Co., Beaver Falls, Penna.	1881
60. Star Encaustic Tile Co., Pittsburg, Penna.	1882
61. The Robertson Art Tile Co., Morrisville, Penna.	
62. The Shenango China Co., New Castle, Penna.	
63, 64. Moravian Pottery and Tile Works, Doylestown, Penna.	
65. The Wick China Co., Kittanning, Penna.	
66–70. The Ford China Co., Ford City, Penna.	
71. The New Castle Pottery Co., New Castle, Penna.	
72. The Derry China Co., Derry Station, Penna.	
73. Pennsylvania Museum and School of Industrial Art, Philadelphia, Penna.	1903

MARKS OF NEW JERSEY POTTERIES

Plate Nos.		Established
74–81.	The Jersey City Pottery, Jersey City, N. J.	1829
	D. & J. Henderson.	
	American Pottery Manufacturing Co.	1833
82.	William Young & Sons, Trenton, N. J.	1853
83–90.	The Willits Manufacturing Co., Trenton, N. J.	1879
91.	The City Pottery Co., Trenton, N. J.	1859
92–98.	Greenwood Pottery Co., Trenton, N. J.	1861
99–101.	The East Trenton Pottery Co., Trenton, N. J.	1888
102, 103.	Millington, Astbury & Poulson, Trenton, N. J.	1853
104, 105.	Thomas Maddock & Sons, Trenton, N. J.	1859
105A.	Thomas Maddock's Sons Co., Trenton, N. J.	1902
106–108.	The Maddock Pottery Co., Trenton, N. J.	1893
109, 110.	John Maddock & Sons, Trenton, N. J.	1894
111–140.	The Glasgow Pottery, Trenton, N. J.	1863
141–155.	Ott & Brewer, Trenton, N. J.	1863
156–163.	The Cook Pottery Co., Trenton, N. J.	1894
164–166.	Isaac Broome, Trenton, N. J.	1880
167.	Coxon & Co., Trenton, N. J.	1863
168.	Trenton Pottery Co., Trenton, N. J.	1865
169–184.	Mercer Pottery Co., Trenton, N. J.	1868
185.	The New Jersey Pottery Co., Trenton, N. J.	1869
186–203.	International Pottery Co., Trenton, N. J.	1860
204–206.	American Crockery Co., Trenton, N. J.	1876
207–212.	Burroughs & Mountford Co., Trenton, N. J.	1879
213–217.	The Prospect Hill Pottery Co., Trenton, N. J.	1880
218–225.	Anchor Pottery Co., Trenton, N. J.	1894
226, 227.	Delaware Pottery, Trenton, N. J.	1884
228–240.	Crescent Pottery, Trenton, N. J.	1881
241–243.	Empire Pottery, Trenton, N. J.	1863
244.	Enterprise Pottery, Trenton, N. J.	1880
245–254.	Trenton Potteries Co., Trenton, N. J., Organized	1892
255.	The Bellmark Pottery Co., Trenton, N. J.	1893
256–258.	The Fell & Thropp Co., Trenton, N. J.	
259, 260.	The Trenton Pottery Works, Trenton, N. J.	
261.	Keystone Pottery Co., Trenton, N. J.	
262.	Star Porcelain Co., Trenton, N. J.	
263–267.	The Ceramic Art Co., Trenton, N. J.	1889
268.	The Trenton China Co., Trenton, N. J.	1859
269.	The American Art China Works, Trenton, N. J.	1891
270, 271.	Columbian Art Pottery, Trenton, N. J.	

MARKS OF NEW JERSEY POTTERIES—Concluded

Plate Nos. — Established

272. American Porcelain Manufacturing Co., Gloucester, N. J. 1854
273, 274. L. B. Beerbower & Co., Elizabeth, N. J. 1816
275. Charles Wingender & Brother, Haddonfield, N. J.
276. C. L. & H. A. Poillon, Woodbridge, N. J.

MARKS OF NEW YORK POTTERIES

277. Salamander Works, New York, N. Y. 1848
278–286. New York City Pottery, New York, N. Y. 1853
287–291. Union Porcelain Works, Greenpoint, N. Y. 1876
292–298. Onondaga Pottery Co., Syracuse, N. Y. 1871
299–302. Volkmar Pottery, Greenpoint, N. Y. 1879
303. East Morrison China Works, New York, N. Y.
304–306. The Faience Manufacturing Co., Greenpoint, N. Y. 1880
307. Charles Graham Chemical Pottery Works, Brooklyn, N. Y.
308, 309. Middle Lane Pottery, East Hampton, Long Island, T. A. Brouwer, Jr.
310, 310A, 310B. The Chittenango Pottery Co., Chittenango, N. Y. 1897
311. American Art Ceramic Co., Corona, N. Y. 1901

MARKS OF NEW ENGLAND POTTERIES

312–314. Norton Pottery Co., Bennington, Vt. 1793
315–317. United States Pottery Co., Bennington, Vt. 1849
318. Nichols & Alford, Burlington, Vt. 1854
319–327. New England Pottery Co., East Boston, Mass. 1854
328, 329. Chelsea Keramic, Chelsea, Mass. 1866
330–332. Dedham Pottery Co., Dedham, Mass.
333–335. Hampshire Pottery Co., Keene, N. H. 1871
336–342. New Milford Pottery Co., New Milford, Conn. 1886
343–347. The Grueby Faience Co., Boston, Mass. 1897
348–360. Artists' Marks.
361, 362. Merrimac Ceramic Co., Newburyport, Mass. 1897
363. The Low Art Tile Co., Chelsea, Mass. 1893

MARKS OF OHIO POTTERIES

Plate Nos.		Established
364–367.	The Harker Pottery Co., East Liverpool, O.	1840
368–372.	The Goodwin Pottery Co., East Liverpool, O.	1844
373–377.	The Smith-Phillips China Co., East Liverpool, O.	
378–391.	The Vodrey Pottery Co., East Liverpool, O.	1848
392–401.	The William Brunt Pottery Co., East Liverpool, O.	1850
402–435.	The Knowles, Taylor & Knowles Co., East Liverpool, O.	1854
436.	D. E. McNicol Pottery Co., East Liverpool, O.	1863
437–443.	C. C. Thompson Pottery Co., East Liverpool, O.	1868
444–452.	The Homer Laughlin China Co., East Liverpool, O.	1874
453–463.	The Potters' Co-operative Co., East Liverpool, O.	1876
464–468.	Cartwright Brothers, East Liverpool, O.	
469–474.	The Globe Pottery Co., East Liverpool, O.	1881
475.	The Wallace and Chetwynd Pottery Co., East Liverpool, O.	
476–478.	The United States Pottery, East Liverpool, O.	
479–483.	The East Liverpool Pottery Co., East Liverpool, O.	1896
484–487.	The George C. Murphy Pottery Co., East Liverpool, O.	
488–493.	The East End Pottery Co., East Liverpool, O.	
494.	The East Liverpool Potteries Co., East Liverpool, O.	
495–498.	The Union Potteries Co., East Liverpool, O.	
499–510A.	The Burford Brothers Pottery Co., East Liverpool, O.	
511–514.	The Taylor, Smith & Taylor Co., East Liverpool, O.	1899
515, 516.	The West End Pottery Co., East Liverpool, O.	1893
517–521.	The Sevres China Co., East Liverpool, O.	1900
522, 523.	The Edw. M. Knowles China Co., East Liverpool, O.	1901
524–526.	The Brockman Pottery Co., Cincinnati, O.	1862
527–540.	The Rookwood Pottery Co., Cincinnati, O.	1879
541–543.	The Cincinnati Art Pottery Co., Cincinnati, O.	1879
544–546.	The Matt Morgan Art Pottery Co., Cincinnati, O.	1883
547.	Avon Pottery, Cincinnati, O.	1886
548, 549.	Miss M. Louise McLaughlin, Cincinnati, O.	1876
550–558.	The Wellsville China Co., Wellsville, O.	1879
559.	J. H. Baum, Wellsville, O.	1897
560.	The United States Pottery Co., Wellsville, O.	1899
561–574.	The Steubenville Pottery Co., Steubenville, O.	1879
575–578.	Lonhuda Pottery, Steubenville, O.	1892
579–584.	S. A. Weller, Zanesville, O.	
585–587.	J. B. Owens Pottery Co., Zanesville, O.	

MARKS OF OHIO POTTERIES—Concluded

Plate Nos.		Established
588, 589.	The American Encaustic Tiling Co., Zanesville, O.	
590.	The Mosaic Tile Co., Zanesville, O.	
591–596A.	The French China Co., Sebring, O.	
597–599.	The Sebring Pottery Co., Sebring, O.	1887
600, 601.	The Oliver China Co., Sebring, O.	1899
602–604.	The East Palestine Pottery Co., East Palestine, O.	
605.	The Ohio China Co., East Palestine, O.	
606.	The Crooksville China Co., Crooksville, O.	
607–610.	The American China Co., Toronto, O.	1897
611–614.	The Cambridge Art Pottery Co., Cambridge, O.	
615.	The Bradshaw China Co., Niles, O.	
616, 617.	The Thomas China Co., Lisbon, O.	
618, 619.	The Akron China Co., Akron, O.	
620.	The Florentine Pottery Co., Chillicothe, O.	
621–623.	The Bell Pottery Co., Findlay, O.	
624.	Roseville Pottery, Zanesville, O.	

MARKS OF SOUTHERN POTTERIES

625–647.	The Edwin Bennett Pottery Co., Baltimore, Md.	1846
648–655A.	The Maryland Pottery Co., Baltimore, Md.	1879
656–663.	Chesapeake Pottery Co., Baltimore, Md.	1880
664.	Morgantown, West Virginia.	1785
665–680.	Wheeling Pottery Co., Wheeling, W. Va.	1879
681.	The Wheeling Potters Co., Wheeling, W. Va.	1903
682–684.	Ohio Valley China Co., Wheeling, W. Va.	
685–687.	The Warwick China Co., Wheeling, W. Va.	1887
688.	The Vance Faience Co., Wheeling, W. Va.	
689, 690.	The Chelsea China Co., New Cumberland, W. Va.	1888
691.	Edward Lycett, Atlanta, Ga.	1861
692, 693.	Geo. E. Ohr, Biloxi, Miss.	
694.	Southern Porcelain Co., Kaolin, S. C.	1856
695–697.	Newcomb Pottery, Newcomb College, New Orleans, La.	1896

MARKS OF WESTERN POTTERIES

Plate Nos.		Established
698–705.	The Peoria Pottery Co., Peoria, Ill.	1873
706.	The American Terra-Cotta Co., Chicago, Ill.	
707.	The Monmouth Pottery Co., Monmouth, Ill.	
708–721.	The Crown Pottery Co., Evansville, Ind.	1891
722.	The Pauline Pottery Co., Edgerton, Wis.	1883
723.	Mrs. S. S. Frackleton, Milwaukee, Wis.	
724.	The Stockton Art Pottery Co., Stockton, Cal.	
725–727.	The Geijsbeek Pottery Co., Golden, Col.	1899
728, 729.	The Denver China and Pottery Co., Denver, Col.	
730, 731.	Mrs. Linna Irelan, San Francisco, Cal.	1899
732–734.	The Van Briggle Pottery Co., Colorado Springs, Col.	1901
735, 736.	Miss Mary Chase Perry, Detroit, Mich.	

For a detailed description, see "Marks of American Potters," by Edwin AtLee Barber, A. M., Ph. D., Pennsylvania Museum, Memorial Hall, Philadelphia, Pa.

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